

**COUNTY OF SAN MATEO
PLANNING AND BUILDING DEPARTMENT**

DATE: November 28, 2018

TO: Planning Commission
FROM: Planning Staff
SUBJECT: Proposed San Mateo County Protected Tree Ordinance
County File Number: PLN 2018-00436

PROPOSAL

Staff proposes that the Planning Commission conduct a public workshop to consider a new Protected Tree Ordinance that would replace the Significant and Heritage Tree Ordinances (Part Three, Division VIII of San Mateo County Ordinance Code, Sections 11,000 et seq and 12,000 et seq). The new ordinance incorporates greater protections for trees, refines application requirements and policies for granting permits, including replacement planting requirements.

RECOMMENDATION

That the Planning Commission consider the draft Protected Tree Ordinance and public comment, and provide staff with direction on any needed revisions.

BACKGROUND

Report Prepared By: Joe LaClair, Planning Manager 650/363-1865

Location: Unincorporated San Mateo County

San Mateo County first adopted tree removal ordinances, including the Heritage Tree Ordinance and the Significant Tree Ordinance in April 1977. The Significant Tree Ordinance was entirely replaced in 1990, and both ordinances were amended in October 2016 to address concerns raised regarding tree protection during construction, and that penalties for unauthorized removal were too lenient and did not sufficiently discourage the practice. The Board of Supervisors, following adoption of these 2016 emergency tree ordinance amendments, directed staff to continue its efforts to update County tree removal ordinances to address a broader range of concerns about tree protection and removal raised by members of the public, the Planning Commission and the Board of Supervisors.

In September 2016, staff convened a steering committee made up of a broad range of interests, experts, state and local agencies and County Departments to prepare comprehensive amendments to the County's tree removal ordinances [See Attachment D]. The Committee met 8 times reviewing different issue areas and policy options at each meeting, informing staff's efforts to draft a new combined tree protection ordinance.

Steering Committee Chronology:

<u>Date</u>	<u>Topics</u>
September 29, 2016	- First Steering Committee Meeting Project Scope, Committee Goals and Role and Existing Conditions
November 17, 2016	- Geographic Policies, Trees and Development, Indigenous Tree Protection, Pruning
January 26, 2017	- Exotic Trees, Rural Lands
March 23, 2017	- Defensible Space, Arborist Reports
May 25, 2017	- Replacement Planting, Off-site Replacement and In Lieu Fees
July 28, 2017	- Summary of Findings Sent to Steering Committee
April 30, 2018	- Review and Comments on Draft Ordinance
September 26, 2018	- Review of Working Draft; Final Steering Committee Meeting
November 28, 2018	- Planning Commission Workshop

One outcome of the Steering Committee process was a consensus that one tree protection ordinance was the preferred approach to amending the existing ordinances. The Steering Committee roster, meeting agendas, staff reports, meeting summaries, presentations and preliminary ordinance drafts are available on the Tree Ordinances Update Project website: <https://planning.smcgov.org/tree-ordinances-update-project>.

DISCUSSION

A. KEY ISSUES

1. What to Protect

The Significant Tree Ordinance currently requires permits for removal of any tree 12 inches in diameter and larger in urbanized areas (and some rural

areas). The Heritage Tree Ordinance requires permits for removal of certain larger indigenous trees of varying sizes. The two ordinances offer similar protections for trees, because the findings required for authorizing removal permits are similar, however the Significant Tree Ordinance includes more criteria. These ordinances lack clear direction on how to apply the criteria.

The proposed Protected Tree Ordinance would create a clearer and effective tree protection regime, maintaining the current ordinances' emphasis on protecting indigenous trees, but allowing removal of some exotic trees with over the counter permits. The new ordinance would require removal permits for:

- a. All indigenous trees 10 inches or larger listed in the current Heritage Tree Ordinance, with the addition of seven indigenous species; and
- b. All trees of any species 12 inches or larger;
- c. Over-the-counter permits for a discrete list of exotic and one native tree species with limits on the number of removals allowed; and
- d. The proposed ordinance would establish a Large Indigenous tree category that requires greater replacement if removal is permitted, pruning permits, and greater fines for unauthorized removal.

This framework retains the protection thresholds of both current ordinances, increases protection of indigenous species, and streamlines permitting for a small class of trees considered nuisance or invasive species. The proposed ordinance also would create a new Heritage Tree designation process for trees that are unique and of importance to the community due to any of the following factors:

- (1) It is an outstanding specimen of a desirable species;
- (2) It is one of the largest or oldest trees in San Mateo County;
- (3). It possesses distinctive form, size, age, location, and/or historical significance.

The Board may approve a Heritage designation if the above findings are made and the property owner agrees.

2. Arborist Reports and Arborist Credentials

The 2016 updates to the Significant and Heritage Tree Ordinances improved the arborist report submittal requirements for tree removal permits. However, the public and Steering Committee members believed that

additional changes were needed to ensure that the public, staff and decision makers had adequate information to determine whether to authorize any tree removal. The proposed arborist report requirements generally conform to the standards developed by the International Society of Arboriculture (ISA), including additional requirements for trees proposed for removal due to hazardous conditions. Applicants seeking tree removal authorization with development permits must provide information about tree protection during construction, and post construction remedial measures and assessments of tree health and any impacts from construction or grading. Arborists must also supervise document and report on construction activities within a specified tree protection zone.

Arborists submitting reports in support of tree removal applications or tree protection measures must have a current certification from the ISA or from the American Society of Consulting Arborists, or other qualifications approved by the Community Development Director. Arborists preparing reports for tree removals due to hazards shall be at a minimum ISA Tree Risk Assessment Qualified (TRAQ).

3. Trees and Development

In response to public and Steering Committee concerns about tree protection during construction, the proposed ordinance would: increase protections for trees to be preserved on construction sites; retain the Existing Tree Plan and Tree Protection Plan policies of the current ordinances; clarify the types of protection required during construction, including arborist supervision and reporting; create new post construction assessment requirements, both prior to issuance of occupancy permits, and five (5) years post-construction; and enable staff or decision makers to require bonds for trees to be protected, when warranted.

4. Replacement Planting

The current tree removal and zoning ordinances require disparate replacement requirements in different areas of the County. The Heritage Tree Ordinance does not require replacements, but replacement planting is a criteria for allowing Heritage Tree removal. The proposed Tree Protection Ordinance requires that all removed trees be replaced, and when replacement is infeasible that an in-lieu fee be paid to fund tree planting or tree management activities to be overseen by the Parks and Public Works Departments. The new ordinance would require greater replacement when removal accompanies construction, and requires replacement with tree sizes most likely to survive and thrive, as well as requiring replacing removed indigenous species with the same species, unless that species will not thrive in the available area(s) for planting. Attachment C summarizes

staff's research that underpins the recommended replacement tree sizes in the proposed ordinance.

5. Review Criteria and Findings

The current tree removal ordinances require that at least one finding from a list be made prior to granting a permit for removal. The proposed ordinance would require that findings be made based on the reason for the proposed tree removal, that all relevant findings be made, and for certain removals, several required findings must be made. Criteria address tree removal with and without development, with subdivisions or within scenic corridors and for pruning permits. The criteria are restated as findings in the proposed ordinance in an attempt to clarify decision-making for all involved.

For tree removals with development, several findings must be made, and if the tree is healthy, the required findings include: (1) that no alternative portion of the site for proposed structures is feasible despite attempts to redesign, and that the tree restricts economic enjoyment of the property, such that the retention of the protected tree would result in reduction of the otherwise-permissible building envelope by more than twenty-five (25) percent, or (2) retaining the tree creates an unusual hardship for the property owner by severely limiting the use of the property in a manner not typically experienced by owners of similarly situated properties. The objective standard is intended to clarify for applicants, the public, staff and decision makers when a tree limits reasonable use of a property. The qualitative standard retains flexibility to address unique circumstances.

6. Other Improvements

- a. Clarified Exemptions, including for County Departments
- b. Migratory Bird Treaty Act protections
- c. Tree Removal Practices
- d. Clarified the circumstances where the Tree Ordinances apply in rural lands zoned for Resource Management, Planned Agricultural District Tree Protection Zones, and scenic roads
- e. Limits the type of allowed landscaping beneath drought-tolerant Trees
- f. Pruning permit policies, based on tree industry standards
- g. Clarified criteria for emergencies
- h. Propose codifying noticing procedures

B. ALTERNATIVES

The Planning Commission could recommend that the existing ordinances be retained.

C. ENVIRONMENTAL REVIEW

A negative declaration will be prepared and circulated when the ordinance is formally considered by the Planning Commission.

D. REVIEWING AGENCIES

Representatives of the Department of Public Works, the Department of Parks, and the Office of Sustainability and the Building Official served on the Steering Committee.

ATTACHMENTS

- A. Staff Recommendation
- B. Proposed Protected Tree Ordinance
- C. Replacement Tree Report
- D. Steering Committee Roster
- E. Tentative Workshop Agenda

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County of San Mateo
Planning and Building Department

STAFF RECOMMENDATION

Permit or Project File Number: PLN 2018-00436 Hearing Date: November 28, 2018

Prepared By: Joe LaClair
 Planning Manager

For Consideration By: Planning Commission

STAFF RECOMMENDATION

That the Planning Commission conduct a public workshop to consider the proposed Protected Tree Ordinance, and after soliciting and considering public comment, provide staff with any direction regarding modifications to the proposed ordinance.

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County of San Mateo
Planning and Building Department

THE PROTECTED TREE ORDINANCE OF SAN MATEO COUNTY
(Part Three of Division VIII of the San Mateo County Ordinance Code)
(Heritage Tree and Significant Tree Regs first adopted 4/5/77)

CHAPTER 1. INTENT AND PURPOSE

SECTION 99,000. FINDINGS, PURPOSE AND INTENT. The Board of Supervisors finds and declares that the existing and future trees and tree communities located within the County of San Mateo are a valuable and distinctive natural resource. The urbanized areas of the County are forested by many native and non-native trees and contain individual trees and communities of trees of great beauty. The health and welfare of the residents of the County require that these trees be conserved in order to preserve the scenic beauty and habitat and property values of the County, reduce erosion, flood hazards and risk of landslides, maintain plant, animal and human habitats, intercept pollutants in the air, reduce or treat stormwater pollutants and mitigate impacts of climate change. The Board of Supervisors finds that establishing regulations controlling the removal, propagation and preservation of trees within the County will further the maintenance and advancement of these public benefits.

The Board of Supervisors finds and declares that the tree canopy in the County is considerably altered from conditions encountered by settlers starting in the 18th Century. Extensive logging, land clearing, stream channelization, over grazing, grassland conversion, suburban and urban development and other land management practices contributed to considerable loss of indigenous trees and introduction of exotic trees throughout the urbanized areas of the County. In the urbanized areas, historic canopy was often supplemented or replaced first by fruit trees, and subsequently by a mix of indigenous and exotic trees, and some grasslands were covered with planted trees. Preserving and planting indigenous trees in proper locations enhances wildlife habitat, mitigates climate change, increases biodiversity, conserves water and improves watershed function.

It is the intent of the Board of Supervisors to regulate the removal of trees within the urbanized and certain developed rural areas of the County in order to retain as many trees as possible, consistent with the purpose of this section and the reasonable use and enjoyment of private property. It is also the intent of this division to preserve as many protected trees as possible throughout the County, particularly indigenous trees, to provide for a healthy urban forest, and increase tree cover as ecologically appropriate in certain areas of the County through staff review of tree removal permit applications and the development review process. Consistent with these goals, it is the County's intent that there shall be no-net loss in the County's urban tree canopy, that removed trees shall be replaced, and over time, urban areas deficient in trees will have greater tree cover, and that replacement trees are drought tolerant and advance County goals.

SECTION 99,001. TITLE. This ordinance shall be known as the "Protected Tree Ordinance."

CHAPTER 2. DEFINITIONS

SECTION 99,002. DEFINITIONS. For the purposes of this ordinance, the following words shall have the meaning ascribed to them in this chapter.

1. ARBORIST REPORT means a professional report prepared by a certified arborist that meets the requirements of Sections 99,014 or 99,015 in this Ordinance.
2. BUILDING ENVELOPE means the surface area of a parcel:
 - a. where a structure may be built, consistent with applicable zoning regulations, without a variance or home improvement exception, including second units, but not including accessory structures or landscaping improvements;
 - b. that is necessary for the construction of primary access to structures located on the parcel, where there exists no feasible means of access which would avoid Protected Trees; and
 - c. the vertical projection of a proposed structure (walls, porches, roof etc.) that may affect the trunk or canopy of existing trees.
3. BUILDING FOOTPRINT means the two-dimensional configuration of an existing or proposed building's perimeter boundaries as measured on a horizontal plane at ground level.
4. CERTIFIED OR CONSULTING ARBORIST means an individual in the profession of arboriculture who, through experience, education, and related training, possesses the competence to provide a tree report, risk assessment, tree survey or supervise the care and maintenance of trees; and who is certified by the International Society of Arboriculture, a member of the American Society of Consulting Arborists or an arboricultural professional approved by the Community Development Director.
5. COMMUNITY DEVELOPMENT DIRECTOR means the Community Development Director of the County of San Mateo, including his or her authorized or appointed representatives.
6. COMMUNITY OF TREES means a group of indigenous trees of any size, which are ecologically or aesthetically related to each other such that loss of several of them would cause a significant ecological, aesthetic, or environmental impact in the immediate area, including any sensitive habitat or buffer zone as defined in the County General Plan.
7. COUNTY means the County of San Mateo acting by and through its authorized representatives.

8. CROWN REDUCTION means an advanced pruning technique for tree risk management where select branch ends are removed from the furthest extended limbs to strategically minimize height and width for a specific management goal, such as weight reduction of a structurally compromised tree or portion of a tree.
9. DEAD TREE means a protected tree that is dead, including a tree with a brown and dry cambium layer of bark, over more than 65% of the trunk perimeter; or in winter, a tree that entirely lacks buds, or has buds that are dry and shriveled over the entire tree, or can otherwise be shown to be dead as determined by the Community Development Director or his or her designee.
10. DEVELOPMENT means any work upon any property in the County which requires a subdivision, rezoning, planning permit, variance, use permit, building permit, demolition permit, grading permit or other County approval or which involves excavation, landscaping, construction or clearing and grubbing or landscaping subject to requirements of the California Water Efficient Landscape Ordinance within a protected tree's dripline or any area that would affect a protected tree. In the Coastal Zone, development as defined in Policy 1.2 of the County's Local Coastal Program.
11. DIAMETER means measurement of the trunk diameter. For the purpose of applying this section, diameter shall be measured 4.5 feet (54 inches) above natural grade. Measurement of multi-trunked trees is determined by the square root of the sum of the squared trunk diameters¹ measured at 4.5 feet (54 inches) above natural grade, located where the root crown meets the trunk. The diameter of split-trunk trees, if the split occurs at or above 4.5 feet above grade, is measured at the narrowest point between the split and the root crown, or if the split occurs below 4.5 feet above grade, each trunk is measured individually and calculated as a multi-trunk tree.
12. DRIPLINE area means outer edge of the tree canopy.
13. EFFECTIVELY REMOVE means activities that include, but are not limited to, any extreme root or branch pruning that is not consistent with standard arboriculture practices for a healthy tree, including compaction within the dripline, poisoning, or introduction of pests or disease, or failure to properly care for a protected tree that results in the tree's permanent disfigurement, destruction, or removal pursuant to this chapter.
14. EMERGENCY means a sudden, serious, unexpected, and often dangerous situation requiring immediate action to prevent or mitigate loss or damage to life, health, property or essential public services. An emergency tree situation typically means a tree failure that is active and in progress, such as a broken but still attached branch; a partially uprooted tree; or a split fork or bifurcated main stem, that meets the "extreme" or "high" risk characteristics as defined by the International Society of Arboriculture.
15. EXOTIC TREE means any tree known not to be a native or indigenous tree, including any tree which has been planted or has escaped from cultivation.

¹ Multi Trunk Tree Diameter = $\sqrt{(a^2 + b^2 + c^2 + d^2)}$ where a, b, c and d are the diameters of each of the trunks of a multi-trunk tree

16. HERITAGE TREE means a tree (or grouping of trees) specifically designated by action of the Board of Supervisors that possesses exceptional and unique size, age, horticultural significance, aesthetic, biological, cultural, or historic value and is irreplaceable and expected to have a continuing contribution to the community.
17. HAZARD TREE means a tree that meets the “extreme” or “high” risk characteristics as defined by the International Society of Arboriculture and may include dead or dying trees, dead parts of live trees, or unstable live trees (due to structural defects or other factors) that are within striking distance of people or property (a target) that have the potential to cause death, injury or substantial property damage if they fail.
18. INDIGENOUS TREE means any tree originating or occurring naturally in San Mateo County as enumerated in Table 2.1 in this ordinance.
19. LARGE INDIGENOUS TREE means any tree originating or occurring naturally in San Mateo County as enumerated in Table 2.1 in this ordinance with a trunk diameter 36 inches or larger as measured 4.5 feet above grade.
20. MULTI-TRUNK TREE means a tree having more than one major supporting stem or trunk growing from a single root mass located at ground level or just above the trunk flare. Multi-trunk tree does not include suckering growth, subordinate root sprouts, or trees which split above 3 feet above natural grade.
21. NATIVE TREE means trees native to California that are not indigenous to San Mateo County, such as Monterey Pine or Monterey Cypress.
22. NESTING SEASON means February 1st through August 15th as defined by the California Department of Fish and Wildlife.
23. PERSON means an individual, public agency, including the County and its departments, firm, association and corporation, and their employees, agents or representatives.
24. POLLARDING means a pruning technique where the ends of the branches of a tree are terminated with a heading cut to a predetermined length, and then resultant epicormic shoots that emerge from just below the heading cut are cut back on an annual basis, forming an enlarging “knob” or “knuckle” at the end of the remaining branches over time.
25. PRIVATE PROPERTY means all property in unincorporated San Mateo County not owned by the County of San Mateo or any other public agency.
26. PROTECTED TREE means a tree regulated by the County of San Mateo as set forth in Section 99,005, Protected Trees and Section 99,005 Heritage Trees.
27. PRUNING means the selective removal of plant parts to meet specific goals and objectives, including but not limited to: safety and risk reduction; clearance; health

maintenance; aesthetic or wildlife habitat improvement; growth control; and to enhance performance or function by developing and preserving tree structure and health or preserving or improving wildlife habitat.

28. PUBLIC PROPERTY means all property owned by the County of San Mateo, any other city, county, city and county, special district or other public agency in the unincorporated area of San Mateo County.
29. PUBLIC NUISANCE means any tree, or part thereof growing in, or overhanging, a public street or right-of-way, interfering with the use of any public street or public place in the County, or tree which, in the opinion of the Community Development Director, endangers the life, health, safety, comfort or property of any persons using such public street, or in such public place, because of the tree's or location, condition of its limbs, roots or trunk, or because of its diseased condition, is hereby declared to be a public nuisance.
30. PUBLIC STREET means all or any portion of territory within the County set apart and designated for the use of the public as a thoroughfare for travel, including the sidewalks, curb and gutter.
31. REMOVE means any of the following: (1) complete removal, such as cutting to the ground or extraction, of a protected tree; (2) taking any action foreseeably leading to the death of a tree or permanent damage to its health; including but not limited to severe pruning, cutting, girdling, poisoning, overwatering, underwatering, unauthorized relocation or transportation of a tree, or trenching, excavating, altering the grade, or paving within the root protection area of a tree.
32. SCENIC CORRIDOR means any scenic road corridor identified in the County's General Plan or as defined and mapped in the Visual Resources Component of the County's Local Coastal Program.
33. SEVERE PRUNING means topping or removal of foliage or significant scaffold limbs or large diameter branches, or a sufficient amount of roots so as to cause permanent damage and/or disfigurement of a tree, and/or which does not meet specific pruning goals and objectives as set forth in the current version of the International Society of Arboriculture Best Management Practices—Tree Pruning and American National Standards Institute (ANSI) A300-Part 1 Tree, Shrub and Other Woody Plant Management—Standard Practices, (Pruning).
34. STREET TREE means a tree in a public right-of-way.
35. TARGET means any person, structure, or object capable of being damaged, injured, or killed by a failed tree or portion of a tree.
36. TOPPING means the practice of cutting back large diameter branches of a tree, including but not limited to cutting of a central leader, to some predetermined lower height to reduce the overall height of the tree, where the remaining buds, stubs or lateral branches are not large enough to assume a terminal role.

37. TREE means a woody perennial plant characterized by having a main stem or trunk, or a multi stemmed trunk system with a more or less definitely formed crown, extensive subterranean roots, and is usually over ten feet high at maturity.
38. TREE PROTECTION ZONE (TPZ) means the area measured from the trunk that is 10 times the trunk diameter measured at 4 and one half feet above grade; or the canopy dripline, whichever is greater, or as specified in a report prepared by a certified or consulting arborist and approved by the Community Development Director that is fenced off during construction. The TPZ is a restricted activity zone before, during and after construction where no access or soil disturbance is permitted unless approved by the County and supervised by the certified or consulting arborist.
39. TREE RISK RATING means the rating of tree risk as defined by the International Society of Arboriculture (ISA) Tree Risk Assessment Qualification Tree Risk Rating Matrix, which categorizes risk as extreme, high, moderate or low, based on an assessment of the likelihood of failure and impact and the consequences such failure and impact would have on life, property, utilities, or essential transportation systems.
40. TREE VALUE STANDARD means the method of appraising a tree's value to a property using the Trunk Formula Method or Replacement Cost Method as described in the most recent edition of the Guide for Plant Appraisal published by the Council of Tree and Landscape Appraisers (CTLA) and the Species Classification and Group Assignment by the Western Chapter of the International Society of Arboriculture (ISA).
41. TRUNK means the primary structural woody part of the tree beginning at and including the trunk flare and extending up into the crown from which scaffold branches grow.
42. TRUNK FLARE means the area at the base of the plant's trunk where it broadens to form roots and is the transition area between the root system and the trunk. The rapid increase in diameter that occurs at the confluence of trunk and root crown, associated with both stem and root tissue.
43. URBAN, OR URBANIZED AREA means lands that are not zoned Resource Management (RM or RM/CZ, Chapters 20A and 36), Timberland Production Zone (TPZ or TPZ/CZ, Chapters 34, 37, 37A and 37B), and Planned Agricultural (PAD, Chapters 21A).

SECTION 99,003. APPLICABILITY. This ordinance shall apply to every property owner and to every person, corporation, partnership, sole proprietorship or other entity responsible for removing, maintaining or protecting a Protected Tree.

SECTION 99,004. PROTECTED TREES. The trees protected by this ordinance are:

1. Any tree 12 inches in diameter (38 inches circumference) or larger when measured 4.5 feet (54 inches) above natural grade.
2. The following indigenous species, shall be considered protected when they meet the minimum size as specified in Table 2.1:

Table 2.1 Protected Indigenous Trees		
Genus and Species	Common Name	Protected Indigenous Trunk Diameter
<u><i>Acer macrophyllum</i></u>	big leaf maple	10 inches
<u><i>Acer negundo californica</i></u>	box elder	10 inches
<u><i>Aesculus californica</i></u>	California buckeye	10 inches
<u><i>Alnus rhombifolia</i></u>	white alder	10 inches
<u><i>Alnus rubra</i></u>	red alder	10 inches
<u><i>Arbutus menziesii</i></u>	Pacific madrone	10 inches
<u><i>Chrysolepis chrysophylla</i></u>	golden chinquapin	10 inches
<u><i>Cupressus abramsiana</i></u>	Santa Cruz cypress	Any Size
<u><i>Fraxinus latifolia</i></u>	Oregon ash	10 inches
<u><i>Lithocarpus densiflorus</i></u>	tan oak	10 inches
<u><i>Platanus Racemosa</i></u>	Western sycamore	10 inches
<u><i>Pinus Attenuata</i></u>	knobcone pine	10 inches
<u><i>Pseudotsuga menziesii</i></u>	Douglas fir	18 inches
<u><i>Quercus agrifolia</i></u> -	oast live oak	10 inches
<u><i>Quercus chrysolepis</i></u>	canyon live oak	10 inches
<u><i>Quercus douglasii</i></u>	blue oak	10 inches
<u><i>Quercus garryana</i></u>	Oregon white oak	Any Size
<u><i>Quercus kelloggii</i></u>	black oak	10 inches
<u><i>Quercus lobata</i></u>	valley oak	10 inches
<u><i>Quercus wislizenii</i></u>	interior live oak	10 inches
<u><i>Salix coulteri</i>, <i>Salix lasiolepis</i>, <i>Salix laevigata</i>, <i>Salix lasiandra</i>, <i>Salix sitchensis</i></u>	Willow	(any size in riparian corridors; six (6) inch or larger "trunks" outside riparian corridors)
<u><i>Umbellularia californica</i></u> ²	California bay laurel	10 inches
<u><i>Torreya californica</i></u>	California Nutmeg	10 inches
<u><i>Sequoia sempervirens</i></u>	Redwood	18 inches

3. Large Indigenous Trees includes any indigenous tree listed in Table 2.1, which has a 36-inch or greater diameter (113-inch circumference), or for species listed in Table 2.2, which have a diameter equal to or greater than the diameter is listed in Table 2.2;

²Umbellularia californica is a known carrier of Phytophthora ramorum. If verified leaf testing confirms the presence of Phytophthora ramorum inoculum, and oaks are within 60' of infected bay, then removal permits for infected Bay trees can issued.

Table 2.2 Large Indigenous Trees <36-inches in Diameter		
Genus and Species	Common Name	Protected Indigenous Trunk Diameter
<u><i>Acer macrophyllum</i></u>	big leaf maple	28 inches
<u><i>Acer negundo californica</i></u>	box elder	20 inches
<u><i>Aesculus californica</i></u>	California buckeye	20 inches
<u><i>Alnus rhombifolia</i></u>	white alder	20 inches
<u><i>Alnus rubra</i></u>	red alder	20 inches
<u><i>Chrysolepis chrysophylla</i></u>	golden chinquapin	10 inches
<u><i>Cupressus abramsiana</i></u>	Santa Cruz cypress	Any Size
<u><i>Fraxinus latifolia</i></u>	Oregon ash	12 inches
<u><i>Quercus chrysolepis</i></u>	canyon live oak	30 inches
<u><i>Quercus douglasii</i></u>	blue oak	30 inches
<u><i>Quercus garryana</i></u>	Oregon white oak	Any Size
<u><i>Quercus kelloggii</i></u>	black oak	32 inches
<u><i>Salix coulteri</i>, <i>Salix lasiolepis</i>, <i>Salix laevigata</i>, <i>Salix lasiandra</i>, <i>Salix sitchensis</i></u>	Willow	10 inches
<u><i>Torreya californica</i></u>	California Nutmeg	30 inches

4. Heritage Trees designated by the Board of Supervisors.
5. Any tree that was required by the County to be planted as a replacement tree or retained by the terms and conditions of a development application, building permit or subdivision approval, tree removal permit or code enforcement action.
6. A protected tree shall also include a community of trees, not comprised of invasive trees, the nature of which makes each dependent upon the other for the survival of the stand; and
7. Any tree designated for carbon sequestration and storage and/or environmental mitigation purposes as identified in a permit or agreement between the property owner and a responsible government agency, where the County is a party or a third party beneficiary, or recorded as a deed restriction.

SECTION 99,005. DESIGNATION OF HERITAGE TREES.

1. Upon nomination by any person and with the written consent of the property owner(s), the Board of Supervisors may designate a tree or trees as a heritage tree. A tree may be designated as a Heritage Tree upon a finding that it is unique and of importance to the community due to any of the following factors:
 - a. It is an outstanding specimen of a desirable species;
 - b. It is one of the largest or oldest trees in San Mateo County;

- c. It possesses distinctive form, size, age, location, and/or historical significance.
2. After Board approval of a Heritage Tree designation, the Community Development Director shall notify the property owner(s) in writing. A listing of trees designated as Heritage, including the specific locations, shall be kept by the Planning and Building Department.
3. Once designated, a Heritage Tree shall be considered protected and subject to the provisions of this chapter unless removed from the list of Heritage Trees by action of the Board of Supervisors. The Board of Supervisors may remove a tree from the list upon its own motion or upon written request by the property owner. Request for such action must originate in the same manner as nomination for heritage tree designation, pursuant to a permit issued in conformance with this chapter, it shall be removed from the Heritage Tree List.

CHAPTER 3. PERMITS, EXEMPTIONS, APPLICATIONS
CONDITIONS OF APPROVAL, POSTING, APPEALS

SECTION 99,006. PERMIT REQUIRED. Except as provided in Section 99,008, a permit shall be required under this Part for the cutting down, transplanting, pruning that effectively removes a tree, grading, trenching, poisoning or otherwise killing or destroying or causing to be removed any protected tree or community of trees, whether indigenous, native or exotic, on any public or private property or for pruning of indigenous or native trees. Protected Tree Pruning Permits are required for certain pruning, including severe pruning, of Large Indigenous Trees.

SECTION 99,007. PROTECTED TREE REMOVAL IN RM, RM/CZ AND PAD DISTRICTS. Tree removal in the following zoning districts: Resource Management (RM or RM/CZ, Chapters 20A and 36), Timberland Production Zone (TPZ or TPZ/CZ, Chapters 34, 37, 37A and 37B), and Planned Agricultural (PAD, Chapters 21A) districts shall obtain the necessary zoning permit, except in the following instances where the policies of the Protected Tree Ordinance shall apply:

1. Tree removal within 100 feet of any County or State scenic road or highway, as identified in the San Mateo County General Plan or Local Coastal Program;
2. Tree removal on sites that are used commercially, e.g., hotels, or distilleries;
3. The removal of five trees or less within 100 feet of existing, legal structures. Removal of six trees or more, or trees beyond 100 feet from existing legal structures, or trees within a riparian zone shall require the issuance of the requisite RM, TPZ or PAD permit; or
4. Tree removal on sites designated RM or PAD located within the urban boundary of the Midcoast.

SECTION 99,008. EXEMPTIONS. No permits shall be required under this Part in the following circumstances:

1. Tree removal carried out under the provisions of Parts One (Timber Harvesting Regulations) of Division VIII of the San Mateo County Ordinance Code.
2. Emergency tree removal to remove a hazard to life and personal property as determined by the Community Development Director, Director of Public Works, Director of Parks and Recreation, County Fire Marshal or Officer of the California Department of Forestry and Fire Protection, consistent with the after-the fact permit requirements of Section 99,034.
3. Tree removal where there is a unique area with a County-authorized tree management program, such as a restoration project removing Eucalyptus to restore grasslands.

4. Tree pruning or removal which has been authorized by the Planning Commission, Design Review Committee, or Community Development Director as part of a permit approval process in which the provisions of this Part have been considered and applied, and the requisite findings can be made for compliance with this ordinance.
5. Tree pruning or removal outside the Coastal Zone by: the San Mateo County Parks Department in County Parks; by the County Department of Public Works or Project Development Unit in County rights of way or on other County property.
6. Removal or pruning of protected trees by a California Public Utilities Commission-licensed utility in order to maintain required clearance around power lines or pipelines.

SECTION 99,009. APPLICATION AND GRANTING OF TREE REMOVAL PERMITS ON PUBLIC PROPERTY OR RIGHTS OF WAY. Any person desiring to cut down, destroy, or move one or more trees on public property must own land immediately adjoining the public property or right of way where the tree(s) is located, shall comply with the policies in this ordinance, and must obtain all required permits, including an encroachment permit from the Department of Public Works.

SECTION 99,010. APPLICATION AND GRANTING OF OVER-THE-COUNTER TREE REMOVAL PERMITS. Any person desiring to cut down, destroy, or move one or more of the trees listed in this section, whether on public or private property, must obtain an over-the-counter tree removal permit from the San Mateo County Planning and Building Department. Tree species for which over the counter approval may be granted include:

1. *Acacia: baileyana*, (Bailey acacia); *cyclops* (cyclops Acacia); *dealbata* (silver wattle); *melanoxylon* (blackwood acacia); *pycnantha* (golden wattle)
2. *Ailanthus altissima* (tree of heaven)
3. *Eucalyptus: globulus* (blue gum) or *camaldulensis* (red gum)
4. *Ligustrum lucidum*, (privet)
5. *Myoporum laetum* (Ngaio tree);
6. *Washingtonia robusta*, (Mexican Fan Palm) and all palms excluding *Phoenix canariensis* (Canary Island date palm); and
7. Agricultural fruit or nut trees that are less than 18 inches in diameter (57-inch circumference).
8. Removal of *Pinus radiata* (Monterey pine) of any size within areas designated as high or very high fire hazard zones by CalFire, or tree removal required by a written directive from the Fire Marshal to create defensible space.

9. Dead Trees, with proper documentation and Community Development Director approval.³

A maximum of 3 trees in any one-year period, and no more than 10 trees within 5 years may be authorized for removal on a parcel with an over the counter permit, excluding dead trees, which have no limit. These trees may not be removed during the nesting season of birds protected by the Migratory Bird Treaty Act without a biological survey certifying that no nests for protected birds are present. Applicants will be subject to the replacement planting requirements in Section 99,017, and Table 3.1 of this ordinance.

Applications for over the counter tree removal permits shall include the items specified in Section 99,011, subparagraphs 1, 3 and 5 and any other additional information required by the Community Development Director

SECTION 99,011. PROTECTED TREE REMOVAL PERMITS. Any person desiring to cut down, destroy, move or trim one or more protected trees on public or private property must apply to the San Mateo County Planning and Building Department for a Protected Tree Removal. Said application shall include:

1. A completed tree removal application form provided by the Planning Department, signed by the property owner;
2. An arborist report, consistent with the requirements of Section 99,014 or Section 99,015 of this ordinance as applicable;
3. Photographs of the tree(s) from multiple aspects and distances, annotated as necessary to indicate areas of disease, decay or other characteristics that are the basis of the removal or pruning application;
4. For subdivisions, grading or development projects involving tree removal or sites with existing trees to be preserved, an Existing Tree Plan, consistent with the requirements of Section 99,018;
5. Any other pertinent information the Community Development Director may require;
6. If structural damage to a building, major landscape feature, or appurtenance, including utilities is the basis for the request, a report from a licensed architect or engineer may also be required in addition to an arborist report. This additional report shall describe what modifications to buildings, structures, improvements or utilities would be required to mitigate the damage(s) directly caused by the tree;
7. A permit fee as adopted by the Board of Supervisors;
8. After-the-fact Protected Tree Removal or Pruning Permit applications shall provide all the applicable requirements from this chapter, including increased fees as determined by the Board of Supervisors. Such projects may be subject to fines specified in Section 99,037; and

³ The Community Development Director may require an arborist report to confirm that a tree is dead.

9. Within 20 working days of receipt of the application, the Community Development Director or his authorized representative shall inspect the premises and trees and shall ascertain which trees may be pruned, cut down, destroyed, moved, or removed; provided however, the Community Development Director may upon receipt of the application and such information, maps, sketches and/or photographs as he or she deems sufficient, make a determination without an inspection. Failure to act within 20 days shall not be deemed approval.
10. Upon receipt of a complete protected tree removal or pruning application, the Community Development Director shall notice surrounding property owners within 100 feet of the lot containing the tree that is subject of the application, and interested parties.
11. If no action on an approved permit is taken within a period of one year from the date of approval, the permit shall be considered void.

SECTION 99.012. PROTECTED TREE PRUNING PERMIT. A Protected Tree Pruning permit is required where pruning of branches greater than four (4) inches in diameter or roots greater than two (2) inches in diameter is proposed for any Heritage tree or large indigenous tree, including crown reduction pruning or severe pruning. Permits for pruning may be granted, denied or granted with conditions. Application submittals under this section shall include the following minimum information for staff review:

1. A completed pruning permit application, signed by the property owner.
2. A written description of the proposed pruning, including the pruning objectives and pruning methods to be used, consistent with International Society of Arboriculture Best Management Practices—Tree Pruning and ANSI A300-Part 1 Tree, Shrub and Other Woody Plant Management—Standard Practices, (Pruning).
3. Photographs of the tree taken from multiple aspects and distances indicating where pruning is to occur.
4. If required by the Community Development Director, a certified or consulting arborist's written report describing the proposed pruning.
5. If structural damage to a building, major landscape feature, or appurtenance, including utilities is the basis for the request, a report from a licensed architect or engineer may be required in addition to an arborist report. This additional report shall describe what modifications to buildings, structures, improvements or utilities would be required to mitigate the damages directly caused by the tree.
6. Documentation confirming that there are no active nests in trees proposed for pruning, notes on plans or in an arborist report committing to modify work procedures as appropriate to avoid disturbing, injuring or killing protected wildlife, and requiring retention or enhancement of desired wildlife features that do not pose unacceptable risk, such as perches, cavities or other nesting sites (specify features to retain or enhance, parts to be removed, and types, sizes and locations of cuts).

7. Payment of permit fee, as adopted by the Board of Supervisors.

The Community Development Director or designee may inspect the site, consistent with Section 99,011.9 and will provide public notice, consistent with Section 99,011.10. Instances where, the Community Development Director determines that a “limb break” or other natural occurrences cause the loss of the crown or limb of a tree, and such loss requires additional corrective cutting, are exempt from the provisions of this Section. Under such circumstances, and following a formal determination by the Community Development Director, appropriate tree surgery may be required, but no permit is needed. Any trees or limbs so removed shall be stored onsite until the Community Development Director or designee inspects the tree parts to assess the reason for failure and whether the emergency pruning was in conformance with this Section.

Street trees shall not be pollarded, unless approved by the Community Development Director.

SECTION 99,013. POSTING NOTICE OF APPLICATION. The applicant shall cause a notice of application on a form provided by the San Mateo County Planning Department to be posted in a conspicuous location clearly visible to the public, preferably on the roadside or public street at eye level, on or close to the property affected indicating the date, a brief description of the application, the identification of the subject property, the address to which comments may be directed and from which further information may be obtained, and the final date for receipt of comments. The applicant shall indicate on the application his or her affidavit that this notice will be posted for at least ten (10) calendar days after the submission of the completed application. Property owners or their agents applying for grading, use permits or other zoning permits that include protected tree removal shall post the site and mark any tree(s) proposed for removal consistent with the requirements of this Section. Trees proposed for removal shall be wrapped with yellow caution tape during the posting period to clarify which tree(s) is proposed for removal.

SECTION 99,014. ARBORIST REPORT REQUIREMENTS (NON-CONSTRUCTION)

1. Arborists reports are required as part of tree removal applications not involving construction and should contain:
 - a. assessment level (e.g., ISA level 1, 2 or 3); statement of assignment; a brief statement of the reason for the requested action; and the time-period during which the arborist report will remain current. For arborist reports completed more than one year prior to County action on the tree removal permit or related planning permit, an addendum to update the report is required;
 - b. genus, species and common name and size (DBH, height and canopy width) of all trees that are the subject of the application and condition of all such trees;
 - c. photographs of the subject tree(s) taken from multiple aspects and distances annotated consistent with findings of the arborists report;

- d. a site plan showing tree(s) location on the property, including proximity of targets with occupancy rates;
- e. photographs of the targets taken from multiple aspects and distances if appropriate.
- f. For trees proposed for removal due to risk or hazards: A discussion of the risk assessment process executed for the subject tree(s) and conclusions based on evaluation. This evaluation shall be consistent with the ISA Tree Risk Assessment protocol, conducted by a Tree Risk Assessment Qualified (TRAQ) arborist.
 - (1) Defined timeframe for risk evaluation. Reports recommending tree removal based on risk/hazard which do not define a reasonable timeframe will be rejected.
 - (2) Likelihood of failure within the defined timeframe, consequence associated with that failure, and the overall risk rating.
 - (3) Recommendations for risk mitigation of subject tree(s), (Move target, prune tree, remedial measures to alleviate perceived risk, or removal) and whether these measures will be sufficiently effective to avoid removal.
 - (4) Description of residual risk for given recommendations, and likelihood of success following remedial measures.
 - (5) Additional recommendations for re-assessment intervals.
- g. Identify limitation of the assessment, e.g., known visual and detectable conditions, uncertainty regarding the projected timeframe; the assessment should only take normal weather conditions into account as extreme weather events are inconsistent and unpredictable.
- h. Maintenance requirements for a two-year plant establishment period for replacement trees.
- i. Ongoing remedial requirements for remaining trees in poor health, after removal.
- j. The report shall conclude with a recommendation as to whether, in the professional judgment of the arborist, the tree(s) should be removed or preserved.
- k. If removal is recommended, a replanting proposal, consistent with the requirements of this ordinance.

- l. Additional assessment information may be required by the Community Development Director or designee, and may need to be prepared by arborists with certain training, experience or professional certifications, such as American Society of Consulting Arborists Registered Consulting Arborist or ISA Board Certified Master Arborist, including use of exploratory tools such as resistograph or sonic tomography to further quantify defects identified in a Risk Assessment, if tree condition cannot be adequately established with a level 2 assessment.
 - m. The reporting Arborist shall not own or be employed by the firm that performs the tree removal/pruning/healthcare operations on the parcel that is the subject of the permit, unless approved by the Community Development Director to address an emergency or a hazard tree.
 - n. A brief discussion of how the proposed action is consistent with the Standards of Review in this ordinance;
2. All Arborist reports, except those in emergency situations where the tree was removed prior to application, shall include recommendations for remedial measures to preserve the affected tree whenever possible, including but not limited to installation of cabling/bracing systems, select limb removal, proper crown reduction (not topping), root pruning, compaction mitigation within the dripline, and integrated pest management and soil care and improvement.

SECTION 99,015. ARBORIST REPORT REQUIREMENTS (DEVELOPMENT, GRADING OR CONSTRUCTION). Arborist reports for tree removal associated with development, grading or construction are required, shall be in a booklet/tree survey report form, and shall include the following:

- 1. All information required for an Arborist report as described in Section 99,014.
- 2. An Existing Tree Plan consistent with the requirements of Section 99,018.
- 3. All trees on the property larger than four-inches in diameter shall be included in the report. Show all trees from neighboring properties whose tree protection zones and canopy encroach onto the property, particularly those off-site trees that would be encroached upon by development, including trees within the public right-of-way or easements.
- 4. Recommendations for tree protection for all trees to be preserved during construction, if tree protection zone will be impacted, consistent with the requirements of Section 99,019.
- 5. Mitigation measures for temporary equipment access (*e.g., concrete trucks, truss cranes, fork lifts, etc.*) and all ingress/egress to development within driplines to avoid compaction, as needed.
- 6. Define remedial measures required to avoid or minimize impacts within dripline, including post-construction remedial measures.

7. Information on impacts to any tree caused by compaction within the Critical Root Zone/Tree Protection Zone.⁴
8. The Arborist Report shall include a recommended inspection interval schedule during and after construction. The proposed inspection interval is subject to review by the Community Development Director, e.g., monthly inspection of tree protection during all exterior work at the project site, including excavation, trenching, forming, framing, roof work, and siding installation when operations could impact trees, and quarterly inspections through duration of project.
9. Provisions requiring the Project Arborist to be present during any excavation or trenching within the dripline of the canopy or at the edge of the tree protection zone including photographic and written documentation of site observations, including removal of roots larger than 2" in diameter.
10. Provisions requiring that all root pruning conducted within the tree protection zone(s) shall be performed by a Certified Arborist or under the direct supervision of a Certified Arborist, and shall be hand-dug or air-excavated using a super-sonic air tool to displace soil. Roots must be preserved to minimize impact to subject trees. Excavated areas shall be backfilled as soon as practicable using original soil substrate watered in to minimize unnecessary compaction and future settling where possible. When immediate backfill is infeasible, roots shall be covered with wet burlap that is kept moist until backfill occurs.
11. At minimum, the Arborist Report shall be a level 2 assessment for protected and heritage trees to be removed due to construction.
12. Maintenance requirements for a two-year plant establishment period for replacement trees and any remedial measures required for existing trees.

SECTION 99,016. ARBORIST CREDENTIAL REQUIREMENTS. Arborists submitting reports in support of tree removal applications or tree protection measures required in Section 99,019 shall have a current, applicable certification for the assessment provided, at minimum certification from the ISA or from the American Society of Consulting Arborists, or other qualifications approved by the Community Development Director. Arborists preparing reports for tree removals due to hazards shall be at a minimum ISA Tree Risk Assessment Qualified (TRAQ).

SECTION 99,017. REQUIRED REPLACEMENT PLANTING

1. All protected tree removal permits shall include a condition of approval requiring the planting of one or more replacement trees of a species and size designated by the Community Development Director or designee. Replacement shall occur consistent with the following:

⁴ (Compaction and root cuts can cause more damage to a tree from construction than removal of large limbs. The damage caused by compaction or root loss may take 2-5 years to manifest.)

- a. One (1) or more replacement trees, of a species and size designated by the Community Development Director, shall be planted on the subject private property. Table 3-1 Tree Replacement Standard shall be used as a basis for this requirement, in addition to the state Model Water Efficient Landscape Ordinance. Replacement trees shall be drought tolerant. The subject property owner shall pay the cost of purchasing, planting and maintaining the required replacement trees.

Table 3.1 - Tree Replacement Standard		
Canopy Size of Removed Tree ¹	Category 1 ^{2,3} Replacement Requirement	Category 2 Replacement Requirement with Construction ³
Up to 25 feet	One 15-gallon tree(1.5-inch caliper maximum)	One 24-inch box tree (2-inch caliper maximum)
More than 25 feet to 40 feet	Two 15-gallon trees (1.5-inch caliper maximum)	Two 24-inch box trees (2-inch caliper maximum)
More than 40 feet	Three 24-inch box trees(2-inch caliper maximum); or Two 36 inch box trees (2.5-inch caliper maximum)	Three 24-inch box trees(2-inch caliper maximum); or Two 36 inch box trees (2.5-inch caliper maximum)

Notes:

- 1. *To measure an asymmetrical tree canopy, the widest measurement shall be used to determine canopy size.*
- 2. *All 15-gallon trees must be planted on-site, unless otherwise approved by the Community Development Director.*
- b. Category 1 projects include tree removals on residential lots up to 10,000 square feet, and residential construction projects up to 250 square feet regardless of parcel size.
- c. Category 2 projects includes all tree removals in all other conditions.
- d. Replacement Trees shall be of a species suited to the available planting location, proximity to structures, overhead clearances, soil type, compatibility with surrounding canopy and other relevant factors.
- e. Removed Protected Indigenous trees shall be replaced with the same species, unless the Community Development Director determines that another indigenous or other tree species is more appropriate. Considerations for non-indigenous tree replacement shall include the site’s carrying capacity for additional trees, the risk of known or potential future pest and disease threats, such as Sudden Oak Death (SOD) disease or planting an indigenous replacement tree would threaten the health and safety of the property owner or immediate neighbors. If the tree removed has a communicable disease or vector, such as SOD, then trees not susceptible to the disease or pest should be planted.

- f. If a removed tree or trees cannot be reasonably replaced on the subject property due to crowding or other physical constraints, an in-lieu payment for each tree removed and not replaced onsite, in the amount set forth in Table 3.2 shall be paid to the County Tree Replacement Fund to replace trees off site, as prioritized below:
 - (1) Add or replace trees on public or private property in the vicinity of the subject property; or
 - (2) Add or replace trees on other County-owned or private property; or
 - (3) Support the County’s urban forestry management program;
- g. In lieu fees for replacement trees shall be as follows:

Table 3.2 - Tree Replacement In Lieu Fees		
Canopy Size of Removed Tree	In Lieu Fee Without Development	In Lieu Fee With Development
Up to 25 feet	\$900	\$1,500
More than 25 feet to 40 feet	\$1,500	\$2,000
More than 40 feet and larger	Appraised Value ¹	Appraised Value ¹

1. Appraised value shall be determined by the Community Development Director utilizing the most recent edition of the Guide for Plant Appraisal published by the Council of Tree and Landscape Appraisers (CTLA) and the Species Classification and Group Assignment by the Western Chapter of the International Society of Arboriculture (ISA).

- h. Replacement plantings shall be chosen so that they can mature to their natural size unconstrained by power lines, structures and adjacent trees. Use small trees when planting under or near power lines. Plant larger, house-shading trees a sufficient distance away from power lines, structures and other large canopy trees to allow the tree to mature without requiring severe pruning in the future. In Very High Fire Hazard Severity Zones, locate replacement trees to provide defensible space. Locate replacement trees to avoid shading existing solar energy systems.
 - i. Trees listed in Section 99,010, including *Pinus radiata* (Monterey Pine) may not be planted as replacement plantings anywhere in the County.
2. Replacement trees shall be planted in a manner consistent with the ANSI A300 tree planting standard, or as prescribed by the Community Development Director or Designee or other decision-making body, as is applicable, and shall be consistent with the following specifications:
- a. If any replacement tree dies or is removed at any time the landowner shall replace the lost tree or trees at his/her expense. All replacement trees shall be maintained as described in the arborist report and tree removal permit. The maintenance period will be automatically extended for a period of two (2)

additional years for any replacement trees that are replaced due to death or unauthorized removal.

- b. Where a tree or trees have been removed on undeveloped lands and no existing water system is available on the parcel, the replacement tree or trees, if required to be installed, shall be of sufficient size that watering need not be done by automatic means if feasible. Under such circumstances, water can be imported by tank or some other suitable method, such as tree watering bags, or saplings planted with biodegradable watering reservoirs, which would ensure tree survival.
- c. Postponing the planting of replacement trees can be approved by the Community Development Director or designee, if such postponement does not exceed 9 months, and would serve to enhance the likely success of the replacement tree(s).

SECTION 99,018. EXISTING TREE PLAN REQUIREMENTS. Applicants seeking Planning or Building permits (including Use, Design Review, Grading or Demolition permits) shall submit an Existing Tree Plan separate from, but consistent with the required site plan, to assess tree impacts associated with proposed demolition or development and establish tree protection measures for demolition or development when activity would occur within the dripline or tree protection zone of a protected tree.

An Existing Tree Plan shall be consistent with a site survey (if said survey is required by the associated Planning or Building Permit), drawn to scale, prepared by a licensed Surveyor or registered Civil Engineer with the existing trees plotted with accurate trunk locations and driplines and calculated tree protection zones of all trees or groups of trees located on the site.

1. A tree survey shall be conducted prior to submittal of any development application proposing the removal of or impact to one or more protected trees. The development application shall include an Existing Tree Plan and a Tree Protection Plan (see Sections 99,018 and 99,019) based on this survey. The tree survey numbers shall correspond to a numbered metal tag placed on each tree on site during the tree survey. The Existing Tree Plan shall be a separate sheet(s), shall be prepared by, or in close consultation with a certified or consulting arborist, and shall include the following information:
 - a. Property lines and easements;
 - b. The locations of existing trees or groups of trees, including driplines with each tree numbered, and identified by trunk diameter at breast height (DBH), with an "X" through each tree proposed for removal, including on-site trees and trees adjacent to the project site, with driplines overhanging the project site. Indicate the calculated tree protection zones and proposed tree protection fencing around each tree. In addition, for trees four (4) inches in diameter or larger, the plan shall specify the precise location of the trunk and crown

spread, and the species, size (diameter, height, crown spread) and condition of the tree.

- c. Notation of all trees classified as protected trees;
 - d. A table listing each tree by number, DBH, genus, species, and common name;
 - e. Identify all trees that could potentially be affected by the project (directly or indirectly-immediately or in long term), such as upslope grading or compaction outside of the dripline;
 - f. For demolition permits, show the building footprint for the structure to be removed;
 - g. The footprint of any existing or new buildings, including additions, accessory structures, patios, pools, paved areas, and driveways, including a quantification of any encroachments of any new construction into the tree protection zone of protected trees;
 - h. The location of existing and proposed site utilities, including water, sewer, drainage features, gas, underground electrical, voice/data, septic field, well head, or other proposed structures or feature that may affect existing tree health and longevity;
 - i. For any new structures or features within the tree protection zone of a protected tree, provide elevations or sections that show the tree and the proposed construction from sufficient vantage points to clarify potential impacts to the protected tree(s) and state whether the proposal requires pruning or removal of protected trees, including pruning that constitutes effective removal.
 - k. An Arborist's report consistent with the requirements of Section 99,015.
 - l. Existing Tree Plans shall NOT include:
 - (1) Proposed Landscaping
 - (2) Topographic Lines
 - (3) Finished Floor Elevations
2. In instances where development is proposed in the tree protection zone of protected trees or trees to be preserved, the Existing Tree Plan and Tree Protection Plan shall be reviewed by the Community Development Director, or designee, who shall, after making a field visit to the property that is proposed for development, indicate in writing or as shown on approved plans, which trees are recommended for preservation using, at minimum, the Standards of Review set forth in Section 99,022. This plan

shall be made part of the staff report to the Community Development Director or deciding body for its consideration of the application for new property development;

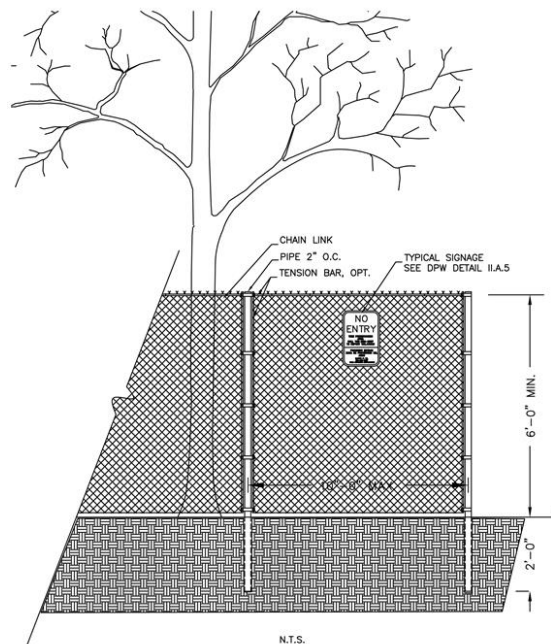
SECTION 99,019. TREE PROTECTION PLAN. All proposals for development (Building or Planning Permit) on sites where proposed construction has the potential to impact a protected tree shall submit a tree protection plan for review and approval, prior to the issuance of a Building or Planning permit. This plan is separate, but must be consistent with the Existing Tree Plan required by Section 99,018. Said protection plan shall be required as needed depending upon site conditions, shall be consistent with ANSI 300 standards for tree protection during construction, and shall include the following:

1. When development impacts are within the dripline of or will affect any protected tree, the applicant shall provide a tree protection report prepared by a certified or consulting arborist, consistent with the requirements of Section 99,015. The report, based on the findings of the arborist report and the existing tree plan and other relevant information, shall be used to determine the health and structural integrity of existing trees, the effects of the proposed development and vegetation removal upon the trees, recommendations for specific precautions necessary for their preservation during all phases of development (demolition, grading, during construction, landscaping); and shall also indicate which trees are proposed for removal. The tree preservation report shall stipulate a required tree protection zone (TPZ) for trees to be retained, including street trees, protected trees and trees whose canopies are hanging over the project site from adjacent properties. The TPZ shall be fenced as specified in this section 99,019:
 - a. The final approved tree preservation report shall be included in the building permit set of development plans and printed on a sheet titled: Tree Preservation Instructions (Sheet T-1). Sheet T-1 shall be referenced on all relevant sheets (site plan, civil, demolition, utility, landscape, irrigation) where tree impacts from improvements may be shown to occur;
 - b. The County reviewing body shall endeavor to protect all trees recommended for preservation by the Community Development Director or designee. The County reviewing body may determine if any of the trees recommended for preservation should be removed, if based upon the evidence submitted the reviewing body determines that due to special site grading or other unusual characteristics associated with the property, the preservation of the tree(s) would significantly preclude feasible development of the property as described in Section 99,022;
 - c. When grading or construction will occur with a tree protection zone, the applicant shall, within ninety (90) days of final approval or prior to issuance of a grading or building permit, whichever occurs first, secure an appraisal of the condition and value of all trees included in the tree report affected by the development that are required to remain within the development using the Tree Value Standard methodology in accordance with the current edition of the Guide for Plant Appraisal published by the Council of Tree and Landscape Appraisers (CTLA) and the Species and Group Classification Guide published

by the Western Chapter of the International Society of Arboriculture, as set forth in this Chapter.

- d. The appraisal of each tree shall recognize the location of the tree in the proposed development. The appraisal shall be performed at the applicant's expense, and the appraisal shall be subject to the Director's approval, and will be used to determine penalties if any trees required to remain die as a result of construction activities or in lieu fees if planting replacement trees onsite is infeasible. Only trees within the impact zone of grading or construction, i.e., the protection fencing will not cover the entire tree protection zone for the entirety of the project, and construction activities, including materials storage, equipment operation, or construction will occur in the tree protection zone.
2. Prior to issuance of any demolition, grading or building permit, the applicant or contractor shall submit to the Building Department a written statement and photographs verifying that the required tree protection fence is installed around street trees and protected trees in accordance with the tree preservation report.
3. If required by the Community Development Director and conditioned as part of a discretionary approval, a security guarantee shall be provided to the County, prior to the issuance of any permit allowing construction to begin. The applicant shall post cash, bond or other security satisfactory to the Community Development Director, in the penal sum of five thousand dollars (\$5,000.00) for each tree required to be preserved, or twenty-five thousand dollars (\$25,000.00) for five or more preserved trees. The cash, bond or other security shall be retained for a period of one (1) year following acceptance of the public improvements for the development and shall be forfeited in an amount equal to five thousand dollars (\$5,000.00) per tree as a civil penalty in the event that a tree or trees required to be preserved are removed, destroyed or severely damaged. If any tree required to be preserved dies during construction due to factors unrelated to the construction, based on a rigorous assessment of the project arborist and the Community Development Director or designees, the bond shall not be forfeit for that reason.
4. If the proposed construction or grading will require that equipment be used within the tree protection zone or will encroach on the canopy, such as truss cranes, fork lifts, concrete trucks, back hoes, material deliveries or storage, etc., the tree protection plan shall include, plans, elevations or sections that depict areas where this equipment will stage and operate and whether existing trees will be within these operational areas, and whether pruning or removal is necessary to accommodate equipment staging or operation.
5. An applicant with a proposed development which requires underground utilities shall avoid the installation of said utilities within the dripline of existing trees whenever possible. In the event that this is unavoidable, all trenching shall be done using directional boring, air-spade excavation, or by hand, taking extreme caution to avoid damage to the root structure. Work within the dripline of existing trees shall be supervised at all times by a certified or consulting arborist.

6. It shall be a violation of this chapter for any property owner or agent of the owner to fail to comply with any development approval condition concerning preservation, protection, and maintenance of any protected tree. All projects shall:
 - a. Identify, establish, and maintain tree protection zones throughout the entire duration of the project;
 - b. Isolate tree protection zones (TPZs) using 6-foot tall, chain-link fencing supported by poles pounded into the ground, located at the edge of tree protection zones as described in the arborist's report⁵;
 - c. Signs stating "No Entry, Tree Protection Area," in both English and Spanish, are to be posted at 30 foot intervals on fencing.
 - d. Maintain tree protection zones free of equipment and materials storage; contractors shall not clean any tools, forms, or equipment within these areas;
 - e. If fencing cannot be placed to protect the entire tree protection zone (10 times the diameter of the trunk DBH) then the project arborist shall include measures to prevent soil compaction in the area of the TPZ that will not be fenced, such as mulching, steel plating to distribute loads, retaining existing paving over the TPZ until the end of construction or other mechanisms to protect the root zone from compaction.
 - (1) Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials.
 - (2) Protect root systems from ponding, eroding, or excessive wetting caused



⁵ Tree Protection Fencing

by dewatering operations.

- (3) Mulch areas inside tree protection zones and other areas as indicated on approved tree protection plan. Apply a minimum of a 4-inch thickness of organic mulch. Do not place mulch within 6 inches of the tree trunk to allow the trunk to breathe.
 - (4) Do not store construction materials, debris, or excavated material inside tree protection zones.
 - (5) Do not permit vehicles or foot traffic within tree protection zones; prevent soil compaction over root systems.
 - (6) Maintain tree protection zones free of weeds and trash.
 - (7) Project Arborist shall supervise fence post installation when posts will be within the tree protection zone to ensure large roots are avoided (may require air spade or hand excavation to expose potential roots).
- f. If any large roots or large masses of roots need to be cut, the roots shall be inspected by a certified arborist prior to cutting as required in the arborist's report. Any root cutting shall be undertaken by or under the supervision of a certified arborist and documented. Roots to be cut shall be severed cleanly with a saw or loppers. A tree protection verification letter from the certified arborist shall be submitted to the Planning and Building Department within five (5) business days from site inspection following root cutting;
 - g. Normal irrigation shall be maintained, but oaks shall not need summer irrigation, unless the arborist's report directs specific watering measures to protect trees;
 - h. Street tree trunks, other trees not protected by dripline fencing, or trees where drip line or other fencing will be relocated temporarily to allow construction activities within 10 feet of the trunk shall be wrapped with straw wattles, orange fence and 2x4 boards in concentric layers to a height of eight feet. Trees in unpaved right of way shall be fenced to the maximum practicable extent, consistent with this section, as approved by the Department of Public Works, and where necessary root protection, such as mulch or weight distributing materials (geotextile fabric or metal plating) shall be installed and maintained during construction. Obtain any required encroachment permits from the Department of Public Works. Any fence relocation during construction shall be supervised by the project arborist, and inspected and approved by the County;
 - i. Arborist report recommendations shall be included on the Tree Protection Plan as notes to guide the contractor's and subcontractor's actions within the driplines or canopies of protected or fenced trees.
 - j. Prior to Issuance of a Building Permit (including Grading or Demolition Permits),

the Planning and Building Department shall complete a pre-construction site inspection, as necessary, to verify that all required tree protection and erosion control measures are in place;

- k. Prior to issuance of an occupancy permit, the applicant must demonstrate to the satisfaction of the Community Development Director or designee via a site inspection to verify that all required tree protection and erosion control measures remained in place during construction, and that all preserved trees are in good health and replacement trees are planted as required and in good health; and
- l. Prior to issuance of occupancy permits for authorized development or acceptance of subdivision improvements, the applicant shall submit to the Community Development Director a final tree preservation report prepared by a certified or consulting arborist. This report shall consider all trees that were to remain within the development as well as those on neighboring properties where roots or branches are found to be impacted by construction, grading or landscaping. The report shall note the trees' health in relation to the initially reported condition of the trees and shall note any changes in the trees' numbers or physical conditions. The applicant will then be responsible for the loss of any tree not previously approved for removal. For Protected Trees, which were removed, the developer shall pay a fine as required in Section 99,037, Table 4.1, or a mitigation amount equal to the appraised value of such tree, whichever is greater, in addition to complying with the tree replacement requirements contained in Section 99,017. The applicant shall remain responsible for the health and survival of all trees within the development for a period of five (5) years following acceptance of subdivision improvements or issuance of a certificate of occupancy. Trees that qualify for over-the counter removal permits shall not be subject to this provision.
- m. Five years after issuance of occupancy permit, the property owner, or successor in interest must demonstrate to the satisfaction of the Community Development Director or designee via a site inspection to verify that all preserved trees are in good health and replacement trees are planted as required and are in good health. Any protected or replacement trees, which have died or are not in good health shall be replaced consistent with the requirements of this ordinance or remedial measures undertaken under direction of an arborist.

SECTION 99,020. TREE REMOVAL METHODS. Tree removal shall be conducted in a safe manner in conformance with ISA removal standards, and shall not include felling of whole trees, unless there is adequate space and no targets within a circle equal to tree height plus ten feet, measured from the trunk at grade.

**CHAPTER 4. PERMIT PROCESSING, REVIEW CRITERIA,
REQUIRED FINDINGS AND CONDITIONS OF APPROVAL.**

SECTION 99,021. DETERMINATION AND CONDITIONS OF PERMIT. The Community Development Director or deciding body shall determine whether to grant, grant with conditions, or deny a permit. The Community Development Director may consult with other County departments or outside agencies at his/her discretion. When a development application for any zoning approval, or subdivision of land, including a lot line adjustment, is under consideration by the Community Development Director or deciding body, the determination on the tree removal permit shall be made concurrently with the related matter by considering and applying the provisions of this ordinance, including any posting and noticing requirements, the review criteria, and by making the requisite findings for compliance with this ordinance.

SECTION 99,022. REVIEW CRITERIA. The Community Development Director or deciding body shall review each application for a tree removal permit required by this chapter using the following criteria to determine whether or not one or more of the Required Findings listed in Section 99,026 can be made.

1. **Tree Removal Without Development.** Protected trees shall not be removed unless a tree report prepared by a certified arborist for the applicant and other relevant information clearly demonstrates that the tree should be removed because it is hazardous, is a detriment to or crowding an adjacent protected tree, is significantly impacting the foundation or eaves of the primary residence or commercial structure; and that remedial treatments or corrective practices that would facilitate saving the tree are not feasible as determined by the Community Development Director or deciding body. In determining whether a tree is significantly impacting a legal structure, the typical longevity of the subject tree species, the size of the tree relative to the property, and whether the condition can be corrected without removal shall be considered. Normal maintenance, including but not limited to pruning not requiring a permit under this chapter, leaf removal and minor damage to paving or fences shall not be considered when making a determination of significant impact. Determinations shall also be based on:
 - a. The general health and anticipated longevity of the tree(s) proposed for removal and condition of the tree or trees with respect to: disease, imminent danger of falling, structural failure, proximity to existing or proposed structures, or structural damage to a building caused by a tree. In cases where tree removal is proposed to mitigate hazard risk, the International Society of Arboriculture (ISA) Best Management Practices for Tree Risk Assessment shall be used in determining a Tree Risk Rating, and shall be established by an ISA Tree Risk Assessment Qualified arborist, and the assessment shall discuss whether the condition of the tree giving rise to the permit application can be improved and hazardous conditions reduced to a less than significant level by the reasonable application of remedial, preservation and preventative measures or routine maintenance.

- b. The tree replacement planting proposal conforms to the replanting requirements of this ordinance.
- c. Proposed replacement trees and the proposed removal are appropriate, given number of trees the particular parcel can adequately support according to good urban forestry practices, or whether a protected tree is a detriment to or crowding another protected tree.
- d. In steeply-sloped areas, whether the topography of the land and effect of the requested action would negatively affect erosion, soil retention, or water retention.
- e. The Community Development Director has determined, on the basis of a tree report prepared by a certified arborist for the applicant and other relevant information, that the tree should be removed because it is dead, dangerous or constitutes a public nuisance. In such cases, the dripline area of the removed tree, or an equivalent area on the site, shall be preserved from development of any structure unless removal would have been permitted under paragraph (2) of this section, and shall serve as the on-site location of tree replacement in accordance with the standards in Table 3.1 of Section 99,017 shall be required.
- f. Whether the tree is sensitive habitat as defined in the County's General Plan e.g., whether the tree provides habitat for special status species, and whether removal, pruning or remedial measures can be undertaken so as to avoid impacts to species.

2. **Tree Removal With Development.** In the case of development or grading, other than in connection with a subdivision:

- a. Protected trees shall not be removed unless all applicable criteria in Section 99,022.1.a-e have been met, and the trunk flare of the protected tree is touching or within the proposed building footprint and cannot be preserved as allowed under Section 99,022.2.b, or the Community Development Director has determined, on the basis of a tree report prepared by a certified arborist for the applicant and other relevant information, that the tree should be removed because it is dead, is hazardous, is a detriment to or crowding an adjacent protected tree, or would significantly impact reasonable use of the property. For the purposes of this ordinance, a significant impact on the reasonable use of property occurs when retention of the tree would result in reduction of the otherwise-permissible building envelope for the primary residence by more than 25 percent despite attempts to redesign to save trees, or would preclude construction of a second unit or other allowable structure consistent with zoning; both are significant impacts on the reasonable use of the property. The diversion or increased flow of surface water shall also be considered.
- b. If more than 25 percent of the tree protection zone of a protected tree would be impacted by proposed construction, the tree(s) should be considered for removal, unless measures can be incorporated into the project design to allow preservation of the impacted tree, such as reconfiguration of the proposed

structure, pier and beam foundations, modular suspended paving system, or relocation of the encroaching building, accessway, or landscape feature.

- c. In all circumstances other than those described in paragraphs (a) or (b) of this section, protected trees shall not be removed unless removal is necessary to achieve other important County policy objectives, such as multi-family housing.
3. **Tree Removal and Subdivisions.** In connection with a proposed subdivision of land into two or more parcels, no protected tree shall be removed unless removal is unavoidable due to restricted access to the property or deemed necessary to repair a geologic hazard (landslide, repairs, etc.). Tree preservation and protection measures for any lot that is created by a proposed subdivision of land shall comply with the regulations of this chapter and be included in the subdivision map conditions. On single-family residential parcels, the portion of the parcel deemed to be the necessary minimum access to the permissible building envelope shall not exceed ten feet in width, in circumstances where tree removal is proposed to provide such access, unless wider access is required by the Fire Marshal.
4. **Pruning Permits.** All Protected Tree pruning shall be in accordance with the current version of the International Society of Arboriculture Best Management Practices—Tree Pruning and ANSI A300-Part 1 Tree, Shrub and Other Woody Plant Management—Standard Practices, (Pruning).
5. **Scenic Corridors.** Tree removal and pruning in Scenic Corridors, or within 100 feet of a Scenic Corridor shall be avoided. Any authorized tree removal within a scenic corridor or within 100 feet of a scenic corridor must be consistent with the applicable General Plan, Local Coastal Program, Zoning, and Design Review policies, this Chapter, and other applicable policies addressing scenic corridors. Clear cutting or removal of existing vegetation from rights-of-way is prohibited, except in those areas required for road and shoulder alignment, as required for reasons of safety, to open important public views, or to create a vista point.

SECTION 99.023. MIGRATORY BIRD PROTECTION. Conduct tree removal, tree pruning, or grading activities outside of the nesting season to the maximum practicable extent. California Department of Fish and Wildlife (CDFW) biologists have defined the nesting season as February 1st through August 15th. If other timing restrictions make it impossible to avoid the nesting season, the tree(s) permitted for removal shall be surveyed by a qualified professional, such as a wildlife trained arborist or wildlife biologist to identify nesting birds. Active nests shall be avoided. If an active nest is found, follow-up surveys shall be conducted to confirm when the nest is no longer active. Delay removal or pruning activity within 300 feet of an active nest until the nest is no longer active, unless authorization for removal from the wildlife agency with jurisdiction is obtained. If a nest is disturbed during tree pruning or removal, contact a local wildlife rehabilitator or rescue service, the CDFW, and follow instructions for care of the disturbed wildlife. Tree contractors should be familiar with wildlife protection regulations when applicable and modify work procedures as appropriate to avoid disturbing, injuring or killing protected wildlife.

SECTION 99,024. LANDSCAPING WITHIN TREE PROTECTION ZONES. Prohibit planting of high-water use plants, installation of extensive irrigation piping, or extensive soil amendments, notwithstanding the requirements of the state's Model Water Efficient Landscape Ordinance adopted by the County, within a required tree protection zone of drought-tolerant indigenous trees. It shall be a violation of this ordinance to install plants and irrigation within the tree protection zone of any protected tree without first obtaining a zoning permit, demonstrating compliance with the County's Model Water Efficient Landscape Ordinance and best practices for planting beneath indigenous trees.

SECTION 99,025. PEST AND DISEASE MANAGEMENT AND CONTROL. Property owners shall care for trees on their property in a manner that controls pests to the maximum extent practicable. Arborists, contractors and others conducting tree planting, pruning or removal shall conduct these activities in a manner that controls pests and prevents the spread of disease to maximum extent practicable. Tools used on sites where disease, such as *Phytophthora* sp. is present, may not be used on non-contaminated sites unless the tools have been properly cleaned consistent with best management practices.

SECTION 99,026. REQUIRED FINDINGS. The Community Development Director, their designee, or deciding body shall approve a protected tree removal permit, or pruning permit for Heritage trees or large indigenous trees only after making all of the relevant and applicable findings based on the Review Criteria, except for cases involving development where at least findings 4, 5, 7 and 8 shall be made:

1. The tree is dead, severely diseased, dangerous or constitutes a public nuisance or is disfigured to such an extent that the tree is unable to recover or return to a healthy and structurally sound condition, by implementing corrective remedial measures.
2. The tree has a tree risk rating of Extreme or High with an Imminent or Probable likelihood of failure onto a target of value within an identified timeframe in accordance with the ISA Tree Risk Rating Matrix as set forth in the ISA Tree Risk Assessment Best Management Practices, or successor publication. Potential remedial measures are insufficient to mitigate the risk to an acceptable level.
3. The tree is crowding and detrimentally affecting other protected trees to the extent that removal or severe pruning is necessary to ensure the long-term viability of the affected, adjacent and more significant trees, and the affected trees will thrive, if the tree is removed.
4. The removal proposal includes a tree replacement planting proposal that conforms to the replanting requirements of this ordinance.
5. The tree proposed for removal is not sensitive habitat as defined in the County's General Plan. If the tree is sensitive habitat, the removal must be conducted consistent with the Review Criteria and so as to avoid impacts on sensitive habitat or species.

6. The tree has caused or may imminently cause significant damage to an existing structure that cannot be controlled or remedied through feasible corrective or remedial measures.
7. The tree removal will not have adverse effects on erosion, soil retention, water retention, and diversion or increased flow of surface water.
8. In the case of development:
 - a. there is no alternative building site for a house, commercial structure, parking lot, driveway, or accessory dwelling unit. Site planning for landscape features (patios, pools, decks, walkways, irrigation lines, etc.) should avoid tree removal to the maximum practicable extent; the applicant has maximized redesign opportunities to avoid or minimize tree removal, and trees and other vegetative land cover are proposed for removal only where necessary for the construction of structures or necessary paved areas.
 - b. The retention of the tree restricts the economic enjoyment of the property, such that the retention of the protected tree would result in reduction of the otherwise-permissible building envelope by more than twenty-five (25) percent, or creates an unusual hardship for the property owner by severely limiting the use of the property in a manner not typically experienced by owners of similarly situated properties, and the applicant has demonstrated to the satisfaction of the Community Development Director or deciding body that there are no reasonable alternatives to preserve the tree.
9. The tree has, or will imminently, interfere with utility services where such interference cannot be controlled or remedied through reasonable modification, relocation or repair of the utility service or the pruning of the root or branch structure of the tree; or where removal or pruning is required by a public utility to comply with California Public Utility Commission (CPUC) or Federal Energy Regulatory Commission (FERC) rules or regulations.
10. The removal of the tree is unavoidable due to restricted driveway access to the property, despite limiting the width of driveway access to 10 feet in width.
11. The removal of a California Bay Laurel (*Umbellularia californica*) where verified leaf testing confirms the presence of *Phytophthora ramorum* inoculum, and oaks are within 60' of the infected bay.
12. The removal of the tree is necessary to repair a geologic hazard.
13. For trees removed within a Scenic Corridor, or within 100 feet of a Scenic Corridor, the removal will not substantially detract from the scenic and visual quality of the County; or will not substantially detract from the natural characteristics of existing major water courses, established and mature trees and other woody vegetation, dominant vegetative communities or primary wildlife habitats. Selective clearing of vegetation which allows the display of important public views may be permitted.

14. The tree should be removed to facilitate achievement of other important County public policy objectives, such as development of multi-family housing.

SECTION 99,027. CONDITIONS OF APPROVAL. In granting any permit as provided herein, the Community Development Director, Planning Commission, or Board of Supervisors may attach reasonable conditions to ensure compliance with the intent and purpose of this ordinance including, but not limited to:

1. Use of measures to effect erosion control, soil and water retention and diversion or control of increased flow of surface waters.
2. Use of measures to ensure that the contemplated action will not have adverse environmental effects relating to sensitive habitat or protected wildlife, shade, noise buffers, protection from wind, air pollution, and historic features.
3. The approved Tree Removal Permit shall be posted on the site at all times during the tree removal operation, and shall be available to any person for inspection. The issued permit shall be posted in a conspicuous place at eye level at a point nearest the street.
4. Removal of posting following all tree removal or pruning activity and inspection by the County.
5. Other conditions as necessary to implement the provisions of this ordinance.

SECTION 99,028. PERMIT NOT ISSUED PRIOR TO BUILDING PERMIT. The approved Tree Removal Permit for trees removals associated with development shall not be issued prior to issuance of the related building permit.

SECTION 99,029. EXPIRATION OF PERMIT. If work authorized by an approved permit is not commenced within a period of one year from the date of approval, the permit shall be considered void.

SECTION 99,030. ACTION ON PERMIT. The Community Development Director shall review the application and, if necessary, inspect the site and shall determine on the basis of the information provided, the site inspection and the criteria contained herein whether to grant, grant with conditions, or deny the permit. Whenever any action is taken on a permit, the Community Development Director shall provide the applicant with a written statement indicating said action, and conditions imposed and the findings made in taking such action.

SECTION 99,031. APPEALS. The applicant or any other person who is aggrieved by the issuance or non-issuance of a tree removal permit or any conditions thereof, or by any other action taken by the Community Development Director as authorized by this Part, may appeal in the manner set forth below. Over the Counter permits issued pursuant to Section 99,010, and pruning permits issued pursuant to Section 99,012 may not be appealed. A statement by the appellant shall be required indicating how the appellant is aggrieved or adversely affected by the decision.

1. Any action under this Part taken by the Community Development Director may be appealed to the Planning Commission by filing a written notice of appeal with the Planning and Building Department within ten (10) business days of the issuance or denial of said permit. The Planning Commission shall hear such appeal in a timely manner. The Planning Commission shall render a decision on the appeal within fifteen (15) calendar days of public hearing. The Community Development Director shall notify the affected parties of said action as provided for in Section 99,013.

2. Any action under this Part taken by the Planning Commission may be appealed to the Board of Supervisors by filing a written notice of appeal with the Planning and Building Department within (10) business days from the decision of the Planning Commission. The Board of Supervisors shall hear such appeal in a timely manner and render a decision within fifteen (15) calendar days following such hearing. The decision of the Board of Supervisors shall be final. The action taken by the Board of Supervisors shall be reported to the affected parties as provided for in Section 99,013 herein.

SECTION 99,032. LIMITATIONS OF TREE ORDINANCE. None of the policies in this ordinance may be construed to permit development otherwise disallowed by other County policies.

SECTION 99,033. PERMIT ON-SITE. The approved Tree Removal or Pruning Permit shall be posted on the site at all times PRIOR TO AND during the tree removal or pruning operation and shall be available to any person for inspection. The issued permit shall be posted in a conspicuous place at eye level at a point nearest the street.

CHAPTER 5. INSPECTIONS, VIOLATIONS

SECTION 99,034. PERMISSION TO ENTER PROPOSED PERMIT AREA. Filing of an application for a Protected Tree Removal Permit shall constitute a grant of permission for County personnel concerned with administering this Part to enter the subject permit area during normal working hours from the date of application to the completion of any approved action for the purpose of inspecting said area for compliance with these rules and applicable law. Such right of entry shall be granted by the landowner through the duration of any requirements to maintain replacement trees as conditions to the permit.

SECTION 99,035. INSPECTION. The Planning and Building Department may cause sufficient inspections to be made of the permit area to assure compliance with the provisions of this part and the requirements of any applicable law. Upon completion of any inspection, the applicant shall be given a written notice of any violations observed at the time of inspection for correction thereof.

SECTION 99,036. VIOLATIONS: CEASE AND DESIST; REMEDIATION OF UNLAWFUL TREE REMOVAL. If the Chief Building Official or Community Development Director or their designated representative, or any officer of the San Mateo County Sheriff's Department or any other peace officer finds any tree pruning or removal activity for which a permit under this Part is required but not issued, or the tree pruning or removal is not in substantial compliance with an issued permit or the plans and specifications relating thereto, an order to cease work shall be issued. No further grading, construction, tree pruning or removal may be done except upon approval of the Community Development Director. Conditions may be imposed as necessary to protect the health, safety, and welfare of the public, including the condition that corrective work be done within a designated time in accordance with the provisions of this Part, or as may be provided by law in Division VI (Zoning Regulations), San Mateo County Ordinance Code.

In the event that the Community Development Director determines that one or more protected trees have been removed, pruned or severely pruned without the required permit or permits, the following additional requirements shall be imposed:

1. If a violation of this Ordinance occurs during development of a property:
 - a. A stop work notice may be issued on all construction of any kind on the property to remain in effect until the remaining requirements of this section are satisfied.
 - b. The owner of the affected property, or their representative, shall be required to obtain an after the fact permit in accordance with Chapter 3 of this Part. The owner or applicant shall be required to submit a mitigation plan for review and approval by the Planning and Building Department. The mitigation plan shall include:
 - (1) Measures for protection of any remaining trees on the property.

- (2) Shall provide for replacement of each tree removed or heavily damaged.
 - (3) Size, number and species of replacement tree(s) shall be at the discretion of the Planning and Building Department and shall be commensurate with the size and species of tree(s) removed.
 - (4) Replacement shall occur on the subject parcel or at a location approved by the County.
- c. The stop work notice shall remain in effect, and no construction shall be allowed on the affected property, until such time as the Community Development Director has determined that the above described mitigation plan has been fully implemented, up to and including the submittal of a non-revocable bond, made payable to the County of San Mateo, for the long-term maintenance of the replacement tree(s).
 - d. At the time of permit application, the applicant shall pay all fees, including investigation fees of 10 times the normal permit fee, as well as the penalty fines cited below under Section 99,037, and satisfy all conditions in connection therewith, including replacement planting.
2. If a violation of this Ordinance occurs in the absence of development or while an application for a building permit or discretionary development approval is pending:
- a. The Community Development Director (or designee) may issue a temporary moratorium on development of the subject property, not to exceed eighteen (18) months from the date the violation occurred. The purpose of the moratorium is to provide the County an opportunity to study and determine appropriate mitigation measures for the tree removal, and to ensure that measures are incorporated into any future development approvals for the property.
 - b. The owner of the affected property, or their representative, shall be required to obtain a permit in accordance with Chapter 3 of this Part.
 - c. A Mitigation Plan as described above, shall be submitted by the property owner and reviewed by the Planning and Building Department. Upon approval, said plan shall be implemented prior to rescinding of the moratorium.
 - d. At the time of permit application, the applicant shall pay all fees, including investigation fees of 10 times the normal permit fee, as well as the penalty fines cited below under Section 99,037, and satisfy all conditions in connection therewith, including replacement planting.

SECTION 99,037. VIOLATIONS: PENALTIES FOR INFRACTION. Any person who violates the provisions of this Part, including property owners and persons performing tree removal or pruning activities, shall be subject to a penalty fine, as follows:

Table 4.1 PENALTIES FOR INFRACTION⁶	
Trees Eligible for Over-the-Counter Permits or Severe Pruning that does not Effectively Remove a Protected Tree	\$1,000
First Protected Tree	\$2,500
Second Protected Tree	\$3,750
Each Additional Protected Tree	\$5,000
For unauthorized removal of a Large Indigenous Tree(s) per Section 99,004, the above penalty fees shall be doubled.	

The above cited fines shall be served on the record owner of the subject property. Additionally, the above cited fines may be served on the person(s) performing the tree removal or pruning, if different than the owner of record. For the purposes of this Section, each single tree being cut without benefit of a permit shall constitute a separate infraction, the fine being cumulative. The Community Development Director may reduce the fines only under extraordinary circumstances where the required fine would be excessive.

SECTION 99,038. VIOLATIONS: CUMULATIVE REMEDIES. The remedies for violations set forth in Sections 99,036 and 99,037 can be enforced separately or cumulatively. In addition to the penalties provided for in this Chapter, any violations may be addressed by civil action.

SECTION 99,039. VIOLATIONS: RECORDATION OF NOTICE OF VIOLATION. A notice of violation may be recorded in the Office of the County Recorder for non-compliance with the provisions of this Part. The Community Development Director shall notify, by certified mail, the owner of the affected real property and any other known party responsible for the violation of the recordation. If the property owner or other responsible party disagrees with the County's determination that the tree removal violates this Part, proof may be submitted to the Community Development Director, including documentation and professional tree surgeon or arborist reports that a tree removal or pruning permit is not required. If the Community Development Director determines that a tree removal or pruning permit is required, the property owner and/or party responsible for the tree cutting work shall apply for the necessary tree removal or pruning permit within a specified time period set by the Community Development Director.

SECTION 99,040. NOTICE OF EXPUNGEMENT. A notice of expungement of the notice of violation shall be recorded with the Office of the County Recorder when:

1. The Community Development Director or other appellate authority determines that a tree removal permit is not required; or

⁶ If the appraised value determined pursuant to Section 99,019.1c exceeds the penalty required, then the required penalty shall be the appraised value.

2. All permit conditions have been met including those conditions imposed as part of project review under any other provisions of the San Mateo County Ordinance Code for the parcel affected by the notice of violation. The meeting of any long term conditions, such as maintenance of replacement plantings, is to be guaranteed by a surety deposit to run with the land and the term for which shall not be imposed as a demand for meeting these requirements for the expungement.

CHAPTER 6. EMERGENCIES AND HAZARD TREES

SECTION 99,041. EMERGENCIES. Pursuant to this section the Community Development Director determines when an emergency situation exists, based on information provided by the property owner or applicant. A protected tree may be removed or severely pruned without a prior permit where it presents an imminent danger to life, property, utilities or essential transportation systems and a tree risk rating of high Extreme or High is present. In such event, the property owner or representative shall be responsible for the following:

1. Notify the Community Development Director during business hours, or the County Sherriff's Department after business hours and request authorization of the proposed emergency action, including removal or severe pruning, based on the tree risk assessment of a TRAQ certified arborist;
2. Emergency action must be authorized by the Community Development Director or designee or a member of the Sherriff's Department, if after business hours, when the situation and conditions warrant immediate action to protect life or property;
3. No later than 72 hours after the emergency action has been taken, the property owner shall submit photo documentation and written verification prepared by a TRAQ certified arborist to the Community Development Director confirming the emergency condition and describing the action taken.
4. Preserve those removed or severely pruned parts of the tree intact that gave rise to the emergency on site to the greatest practicable extent, consistent with safety considerations for inspection by the Community Development Director or designee, prior to dismemberment or removal.

Prior to emergency removal or pruning, the applicant shall document the emergency conditions as required in this section. Following the emergency removal or pruning, the applicant shall submit a tree removal or pruning application to the Community Development Director within five (5) working days thereafter, and the provisions regarding replacement trees in accordance with Section 99,017 of this Part shall be required. The action must be substantiated after the fact by the applicant supported by an arborist assessment with photographs (taken before tree removal or cutting), abatement information, insurance claim and other relevant information and completion of a Tree Removal Application.

Following the emergency removal, the property owner and/or applicant shall apply for an After-the-Fact tree removal permit (subject to required fees and conditions of approval, including replacement tree(s)). If corroborating evidence (as described above) is not submitted, or the Community Development Director determines that the condition was not reasonably determined to have been an emergency requiring immediate action, then the property owner and/or applicant shall be required to apply for an After-the-Fact tree removal permit (subject to required fees and conditions of approval). If the tree removal or pruning was not an emergency, the action will be treated as a violation of this ordinance.

SECTION 99,042. HAZARDOUS TREES. In instances where a tree does not show clear evidence of imminent failure (i.e. – uprooting, sudden dramatic leaning, split trunks and

other evidence of storm damage) but could still present a hazard due to failing health/defects and the proximity and nature of potential targets, a property owner can apply for an expedited tree removal permit. The expedited permit process will not include noticing and appeal periods.

In order to qualify for this expedited process, the property owner (or their representative) must submit an arborist report consistent with Section 99,014, including an International Society of Arboriculture (ISA) Basic Tree Risk Assessment Form prepared by an arborist who is ISA TRAQ (Tree Risk Assessment Qualification) certified and related photo-documentation to illustrate the tree risk. Trees must have a risk rating of “high” or “extreme” to qualify for the emergency process.

The emergency process is still subject to permitting fees and tree replacement requirements, as appropriate.

Trees that are determined to be below the “high” risk rating are subject to the normal permitting process for removal.

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Proposed San Mateo County Protected Tree Ordinance Tree Replacement Policy Background Report

Introduction:

The Planning Commission asked staff to prepare a science-based recommendation on the appropriate size of replacement trees that should be required to mitigate tree removals, and whether requirements should vary based on site conditions and the nature of proposed removal. It is universally accepted within the landscape and tree industries that smaller caliper replacement trees recover faster from the impacts of transplanting, regenerate damaged roots sooner, acclimate more easily to the new environmental conditions, require reduced supplemental watering, and produce larger and fuller canopies in a shorter timeframe compared with larger replacement sizes as a result of these factors. Staff's recommendation is based on this premise.

Other Communities' Tree Replacement Requirements

In contrast to these accepted practices and outcomes, many incorporated communities within San Mateo, Santa Clara and other adjacent counties require installation of larger box-size trees for replacing regulated tree removals. A key reason for requirements is an attempt to enforce of a 'no-net-loss in canopy' replanting model and a desire to reduce canopy replacement times. For most municipalities exercising a no-net-loss model, the required canopy reestablishment period is set at fifteen (15) year post planting¹. Although we cannot disagree that box-style trees have the capacity to replace canopy, we believe in general that smaller trees recover faster from transplanting and encounter less challenges from environmental factors as they establish themselves to close canopy gaps and that in general, smaller container-sized trees will outperform box-sized trees.

Our research found very few peer-reviewed studies, which provide a reliable scientific evaluation of nursery tree sizes and relative establishment and growth rates for 15 gallon containerized stock versus 24" and 36" box-style trees. The goal of this document is to evaluate available research from multiple sources to guide the County in developing a regulated tree replacement standard which focuses on the successful establishment of required tree plantings that achieve replacement goals.

Proposed Tree Protection Ordinance Replacement Standard

The proposed draft of the 'Protected Tree Ordinance of San Mateo County' includes the following Tree Replacement Standard.

¹ Palo Alto, Los Gatos, San Mateo, Atherton, and Santa Clara County

Table 3.1 - Tree Replacement Standard		
Canopy Size of Removed Tree ¹	Replacement Requirement ³	Single Family Residential Replacement Option ^{2,3}
10 feet to 25 feet	One 24-inch box trees	One 15 gallon trees
More than 25 feet to 40 feet	Two 24-inch box trees	Two 15 gallon trees
More than 40 feet and larger	three 24-inch box trees; or Two 36 inch box trees	Not Available

Notes:

- a. To measure an asymmetrical tree canopy, the widest measurement shall be used to determine canopy size.
- b. Single Family Residential Replacement Option is available for developed single family residential lots under 10,000 square feet. All 15-gallon trees must be planted on-site. Any in-lieu fees for single family residential shall be based on 24” box tree rates as adopted by Board of Supervisors.
- c. Replacement Trees shall be approved by the County Arborist and shall be of a species suited to the available planting location, proximity to structures, overhead clearances, soil type, compatibility with surrounding canopy and other relevant factors. Replacement with native species shall be strongly encouraged.

To better understand the average nursery sizes of 15-gallon, 24-inch and 36-inch box trees, we reviewed the American National Standards Institute (ANSI) Z60.1-2014 *American Standard for Nursery Stock*. This national nursery standard outlines the recommended root volume for each size of container and provides acceptable variance of soil/rooting volume per container.

Table 1 – Container Class Volume Ranges and Box Size Equivalents		
Container class specification	Container volume ranges	Box size equivalent
	Cubic inches min - max	
#15	2768 - 3696	
#20	4520 - 5152	20 - inch box
#25	5775 - 6861	24 - inch box
#45	9356 - 11434	36 - inch box
#65	13514 - 16517	42 - inch box
#95/100	20790 - 25410	48 - inch box
	Shading denotes equivalents to 15 gal, 24 and 36-inch box	

This portion of Table 1 of the ANSI Z60.1-2014 Nursery Standard shows acceptable variation of container size by volume (cubic inches) and the container size to box equivalent. Although the ANSI Z60.1-2014 standard specifies equivalent sizes for box trees in comparison to container stock, it also states box size trees and containerized trees shall be universally accepted as equivalents when either growing method is preferred by a grower regardless of variances in soil volume. This variation in soil volume allowance is critical because the soil volume of box trees is typically greater than that of plastic containerized trees,² and staff believes, based on our research that soil/root volume is a key determinant of tree success.

Table 2 – Specifications for Type 1 shade trees						
[This portion of Table 3 ANSI Z60.1-2014 Nursery Standard tree container sizing for shade trees.]						
Specifications for field grown Type 1 shade trees shall include plant size, by caliper. Specifications for container grown Type 1 shade trees shall include plant size, by height, through 7-8' size designation, and container class or box size equivalent. Thereafter, plant size specification shall be by caliper.						
Caliper / height specification	Average height range	Typical maximum height	Minimum root ball diameter	Minimum root ball depth	Acceptable container classes	Minimum acceptable in-ground fabric bag size (diameter)
1 in. / 7ft.	8 to 10 ft.	11 ft.	16 in.	10 3/8 in.	#7, #10, #15	10 in.
1 ¼ in.	8 to 10 ft.	12 ft.	18 in.	11 ¾ in.	#10, #15, #20	10 in.
1 ½ in.	10 to 12 ft.	14 ft.	20 in.	12 in.	#15, #20, #25	12 in.
1 ¾ in.	10 to 14 ft.	14 ft.	22 in.	13 1/8 in.	#15, #20, #25, #45	14 in.
2 in.	12 to 14 ft.	16 ft.	24 in.	14 3/8 in.	#20, #25, #45	16 in.
2 ½ in.	12 to 14 ft.	16 ft.	28 in.	17 in.	#25, #45, #65	18 in.
Shading denotes sizes corresponding to 15 gal. 24-inch and 36-inch box						

Table 2 lists the industry standards on plant stock equivalencies for a variety of plant characteristics. The standard specifies equivalent box sizes in relation to tree sizes (e.g., caliper, height and root ball size). The ANSI standard states, if “specification is required and only container class is specified then the specification is incomplete, and may not be used as the basis for rejecting nursery stock based on the minimum or maximum plant size shown in the tables in cases where a specification does not include a plant size specification.” Therefore, the selection of plant material should be made by specifying a required caliper size or height and using the sizing tables as guideline to determine the most appropriate container size based on these parameters. This

² For purposes of the Table 1; Box size “equivalent” indicates that a box size may be specified in lieu of the indicated equivalent container class, and nursery stock in an equivalent box size shall be accepted in the trade as in conformance with a specification for container-grown nursery stock in the equivalent container class indicated, and vice-versa. Boxes are not required to have volumes that are “equal to” or within the volume range of the indicated equivalent container class, or vice-versa. ANSI Z60.1-2014 section 1.1.3.7.

variability in sizing makes it possible for a nursery to sell a 36-inch box tree (#45 equivalent) at 1 ¾ inch caliper which could also be classified as a 15 gallon (#15 container).

Regardless of container type, nursery growers are required to maintain the root ball sizing necessary to support the woody stem size. Selecting replacement trees solely based on container size is not recommended; it is better to select trees whose root volume is greater in comparison to stem diameter/canopy size.

Literature Summary

The correlation between root volume and quality of plant establishment has been studied in both professional anecdotal studies and peer reviewed journals. Universally, the results of these studies have shown that trees with a greater initial soil/root volume, regardless of tree diameter and canopy volume, grew faster in the first couple years after installation than that of trees with a smaller root to stem ratio. **(Davis, 2005)** In a highly documented study by Dr. Gary Watson it was discovered that, all things being equal, root regeneration occurs at equivalent rates independent of transplanted tree size **[Watson, 1985]**. However, root generation is affected by more than just time within the landscape. Environmental conditions, including soil type and quality of soil nutrients, available soil moisture, annual rainfall, directness of wind, location on slope, and sun exposure can affect both root and shoot growth timeframe. Additionally, an individual tree species' adaptability to these environmental conditions can assist in identifying the optimum window for tree establishment. For example a tree installed during the summer that experiences drought in its first year, may not grow out of its root ball until environmental conditions, such as adequate soil moisture, allow for new growth. Improper timing of transplanting can influence this reduction in root development, which effectively creates a dormant root condition; this scenario may result in tree death or developmental set-backs if supplemental watering is insufficient.

Although one study found that root elongation rates are similar for small and large trees **(Watson and Himelick, 1982b)**. In a 2005 comparison study which reviewed previously published papers on tree size and establishment concluded that larger trees will end up having slower establishment rates. This is primarily caused by the amount of root loss during transplanting of previously established trees. Larger trees expend more energy reestablishing lost roots, which, in turn, stunts foliar development until roots can reach pre-transplant volume. **(Watson, 2005)**. Although the Watson studies have been time-tested, there are limitations applying these conclusions here. Watson's work had been primarily conducted in the mid-western United States, where environmental conditions are significantly different than in San Mateo County. The Watson studies also used balled and burlap trees, which are not common in our area. Limitations of this study considered that both foliar and root development in trees will require environmental conditions which benefit quality of growth.

Although we believe that requiring smaller planting stock, such as 15 - gallon size will result in a better overall performance, such trees are commonly cultivated in circular

plastic containers. Research suggests that square sided containers provide healthier initial root structure, “Plant’s grown in square containers had less circling roots compared to those in a standard black plastic container, and roots were matted on the bottom of the square container.” **(Gillman, et al 1998)**

Evaluating how the size, shape and type of container influence plant establishment had been further explored by looking at soil type within containers and nursery Best Management Practices. Results showed that some nursery trees may have been of poorer quality growth stock whether by vigor or form, which may have extended their residence time at the nursery, due to being rejected by purchasers at younger ages. Generally, the more vigorous (genetically superior) trees are harvested first; slower growing (genetically inferior) trees are harvested later as large caliper trees. Thus, trees harvested at larger caliper may be genetically inferior to those trees dug at smaller sizes. **(Struve, et al 2000)** Re-potting by sizing up containers as trees and roots continue to grow places more stress on the up-sized trees by continually cutting roots and amending soil. Root pruning during the sizing-up process results in a more fibrous root systems which requires a higher volume of water to maintain while in the nursery and in the landscape after planting **(Watson 1986)**. Unlike the larger trees, those planted from the smallest containers retained the capacity to generate a root system similar to that found in nature. This capacity appeared to diminish as [trees] were retained in the nursery by shifting them to increasingly larger container volumes. **[Gillman, et al 2013)**

The key question for the purpose of this inquiry is not tree vitality, but how trees vary in growth rates based on tree size at planting. One study conducted in College Station, TX, revealed that installation of #25 (24-inch box tree equivalent) and #45 (36-inch box tree equivalent), exhibited close to zero percent change in root growth during the first year after planting. However, during the second growth season root establishment for trees installed at seven gallon (#7 containers) had been nearly equal in total rooting volume to that of trees transplanted from #25 and #45 containers. By the end of this particular study it was determined that the greatest return on investment had been observed in #3 (1/2” to 5/8” caliper or 4-6’ height) trees however, #7(5/8” to 1” caliper or 5’-10’ height) and #25 (1.5” to 2.5” caliper or 10-14’ height; or 24” box equivalent) trees also provided significant benefit. **(Garcia-Chance, et al, 2015)**

Based on the observed data from the researched studies and the ANSI standard, staff believes that a workable standard to adopt is to require installation of smaller caliper trees with a larger soil volume. This method may hold the key to achieving greater success in replanted tree establishment.

Other Replacement Tree Considerations

Recently, the California Legislature adopted laws encouraging and streamlining permitting of accessory dwelling units (ADU’s). Currently, many single family properties have sufficient open space to support considerable tree canopy, particularly on larger lots. Widespread ADU development would reduce the area in single family

neighborhoods available for supporting new and replacement tree canopy. ADU development in residential neighborhoods creates a tradeoff between increasing the housing stock and the vegetation protection objectives of the County's General Plan and its tree protection ordinances.

Planning for the installation of replacement trees may require significant forethought as conditions may change on a site during the scope of a tree removal or development project. Generally, when a tree is permitted for removal, a replacement tree will be installed in the same general location. However, in some instances when a homeowner, arborist, or landscape architect takes a closer look at the remaining tree canopy, they may identify that the area is already over-planted or the remnant canopy will shade a newly installed tree causing stunted growth or suppression. In some instances, removal of a select tree or trees may improve site conditions for remaining trees of higher ecological or aesthetic value without installing new trees. These approaches to tree management should be considered on a case-by-case basis as viable alternatives when over-crowding is apparent.

Physical changes to a site during development, such as grading, may restrict total soil volume, soil quality, and the tree carrying capacity for a given location. There are direct correlations between mature canopy size and the required soil volume for nutrient uptake and structural stability. Identifying and preserving an area of adequate soil volume and quality should be accounted for during planning stages of development, especially where replacement trees are required. Installation of tree wells and subterranean soil structures, such as Silva Cells may help provide enough soil area for new tree development **(Costello, Jones 2003)**.

When planting new trees, it is recommended to follow current tree planting best management practices, including; consideration of proper placement in the landscape to accomplish project goals, and the implementation of an appropriate after care and watering plan to further increase the likelihood of tree establishment. Installation of new trees at the proper planting depth is critical to long term survival of replacement trees. Preparation of the installation hole at 2-3 times the diameter of the container will ensure less compacted soil for young regenerating roots, and, by placing trees with the root collar at soil level, can help to mitigate common errors associated with improper planting. Installation of larger trees further exacerbates planting issues; unexpected death of large-caliper trees is commonly attributed to planting too deeply and lack of root pruning during production **(Struve, et al 2000)**. By comparison, installation of smaller planting stock increases the establishment rate of root regeneration in trees. Trees from smaller containers exhibited reduced transplant shock, decreased establishment time and increased growth rates, creating a quicker return on investment in comparison to larger installed trees. **(Garcia-Chance et al, 2015)**.

One research study on this topic found that the size of tree installed had little bearing on quality of root establishment, however, the greatest establishment success for of foliar growth was reported in situations with a consistent, reliable watering program during the first year after installation. Although this seems contradictory to our belief that smaller

replacement trees perform better, this study focused on foliar growth over root development. In this four (4)-year study, young oaks were transplanted in an urban landscape setting in the San Francisco Bay Area. When testing thresholds for irrigation at 0%, 25%, or 50% of [evapotranspiration], it was observed that the level of watering had no direct effect on the trees root establishment after providing 1-year of consistent watering during the establishment period. After the establishment period, each species grew at similar rates with or without irrigation. In this particular study, the greatest influence on plant development occurred on coast live oak trees, which exhibited increased shoot development in higher watering regimens (**Costello et al., 2005**). As an added benefit mulching around the root-ball of the newly installed tree also helps to cool roots and retain moisture during hot and dry times of year and can further reduce a young trees need for supplemental watering.

There are a number of factors which need to be considered to accomplish effective replacement tree planting.

Provide ample soil area for remnant trees to thrive through construction process, including restricting construction activities within tree protection zones to maintain pre-construction soil conditions.

- a. Whenever possible, plant replacement trees in undisturbed soil area of sufficient enough to provide ample soil volume required based on anticipated mature tree size and canopy replacement goals.
- b. Locate new trees to allow for full canopy growth potential, by identifying conflicts with existing vegetation on the subject property and neighboring properties.
- c. Require proper planting specifications to be added on development plans and ensure that they are implemented.
- d. Conduct replacement tree inspections to ensure mitigation plantings are being installed.

Incorporating these practices in policy and implementing them through the planning process will assist the County in developing a successful, higher quality canopy improvement plan.

Conclusions

It is universally accepted within the landscape and tree industries that smaller caliper trees recover better from impacts of transplanting than larger trees. Acclimation of smaller trees to new soil and environmental conditions has been studied extensively showing faster regeneration of removed roots, reduced frequency of supplemental watering, and the development of larger and fuller canopies in a shorter timeframe when compared to larger replacement sizes. Despite these widely held beliefs, there is a

dearth of peer-reviewed studies examining the question of whether large or smaller tree nursery stock performs better in the landscape when planted. Our search for scientific proof to substantiate a replanting requirement yielded only a few peer-reviewed studies and several professional journal articles, the conclusions of which are summarized in this report. We also contacted select UC Berkeley Extension professors, Cal Poly professors, and consulting arborists, all who are knowledgeable on tree propagation and ecological restoration. The information from these sources proved more anecdotal in supporting our conclusions than scientific, and did not yield additional scientific studies which weren't already referenced.

Trees are living organisms and subject to variables outside of human control. Environmental conditions, including soil type, volume and pH, exposure to sun light, availability of water and room for root and canopy expansion all play a large role in establishing successful replacement trees. The quality of environmental conditions in relation to these outside factors can influence vulnerability to disease and pests, which in turn can limit the viability of a developing tree. The studies researched proved that these variables play a major role in tree establishment above and beyond that of initial tree size and container style. Survival rates for trees which are properly cared for increase dramatically when proper mulching and supplemental watering guidelines are followed.

Based on our research and findings we recommend that the proposed tree replacement requirements provided in Table 3.1 - Tree replacement standard of the proposed Protected Tree Ordinance, are correct and suggest the following:

- a. Use a two (2)-factor replacement criteria when selecting a replacement tree, including soil volume (container size) and stem caliper/or height (species specific).
- b. Require mulch and proper irrigation schedules as part of permit conditions.
- c. Restrict replacement planting timeframes for the late fall/winter for optimal planting conditions.
- d. Require County tree re-planting to follow current landscape industry planting standards.

We believe the practice of installing replacement trees with higher root to stem ratios, application of an appropriate watering and after-care measures, and limiting re-planting to the optimal installation locations and timeframes may provide the best establishment success for replacement trees.

Where development is concerned, having ample soil area capable of supporting a mature tree may assist in creating a viable location for tree replacement. In select circumstances it may be beneficial to allow natural regeneration of suppressed tree canopies to substitute for tree replacement requirements. However, this should only be

considered in instances where the remnant tree canopy would restrict growth of newly installed trees.

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San Mateo County Tree Ordinances Update Project Steering Committee Roster	
Name	Organization
Matthew Bissel	Consulting Arborist
Matt Carpenter	Consulting Arborist
Tiffany Edwards	Peninsula Open Space Trust
Fred Herring	Architect
Judy Horst	Menlo Oaks Tree Advocacy
Tim Hyland	California Department of Parks and Recreation
Lisa Ketcham	Midcoast Community Council
Rochelle Kopp	Emerald Lake Hills
Barbara Kossy	San Mateo County Weed Management Area
Igor Lacan	Urban Forester – UC Berkeley Extension
Catherine Martineau	Canopy, Inc.
Amanda Mills	Midpeninsula Regional Open Space District
Ray Morneau	Consulting Arborist
Kellyx Nelson	San Mateo County RCD
Lee Nachtrieb	Arborist
Nancy Reyering	Woodside Architecture and Site Review Committee
Lennie Roberts	Committee for Green Foothills
Rich Sampson	Cal Fire
Name	Department
Ramona Arichega	Parks
Julie Casagrande	Public Works
Ellizabeth Dallman	Board of Supervisors, District 4
Miles Hancock	Planning and Building
Dan Krug	Planning and Building/Parks
Joe LaClair	Planning and Building
Joe LoCoco	Public Works
Danielle Lee	Office of Sustainability
Mike Schaller	Planning and Building

San Mateo County Tree Ordinances Update Project

A Collaboration of the Planning and Building, Parks, and Public Works
Departments and the Office of Sustainability

Planning Commission Workshop

November 28, 2018
400 County Center, Board of Supervisors Chambers
9:00AM – 11:00AM

Tentative Agenda

Meeting Objectives: Provide the Planning Commission and members of the general public opportunity to review the proposed Protected Tree Ordinance, ask questions and provide comments.

Time	Agenda Item
9:10	Presentation of Staff Report to Commissioners (Joe LaClair)
9:25	Commissioner Questions
9:45	Information Exchange – Commissioners and Public Attendees will Circulate Through Information Stations, Ask Questions and Provide Input
10:45	BREAK
10:50	Public Comment
	Commission Direction to Staff (following public comment)
11:30	Close and Thank you